

# The Canadian Medical Association Journal

Vol. XXII

TORONTO, MAY, 1930

No. 5

## THE AGE INCIDENCE OF CARCINOMA\*

By THEO. R. WAUGH, M.D., AND T. L. FISHER, M.D.,

*Montreal*

STATISTICS on the incidence of death from carcinoma have been the subject of numerous contributions, and one has but to read the extensive works of Wolff, Hoffman, and others to realize how much attention was paid to this, particularly in the latter half of the last century. Wolff, as have many others, warns against the drawing of positive conclusions from such figures and points out the many factors which may play a rôle in leading to misinterpretations. Incorrect diagnosis as to the cause of death, incomplete returns in the community, etc., all tend to make such figures questionable. An interesting example of such a fallacy is the gradual gain in the ratio of males to females in regard to the occurrence of carcinoma within the past fifty years. This is so marked and constant as to seem quite conclusive evidence that men are becoming more prone to the disease. As a matter of fact, it is much more likely that increase in operative treatment, more autopsies, and better diagnosis of cancers in men are responsible for this apparent increase. A very large percentage of cancers in females are of the breast or cervix, and hence more obvious than the common deep-seated cancers in the male.

Statistics compiled from surgical material, however, are much less numerous than those from vital records. They have two distinct advantages: first, the diagnosis is positive, provided histological examination is made; secondly, as regards age incidence, the diagnosis is generally made earlier in the disease, not at the end. Of course it must be borne in mind that surgical material does not cover to

the same degree the various organs of the body which are subject to cancer. Superficial tumours are much more likely to come under observation, while other lesions, as for example primary carcinomata of the lung, would not be met with at all, or at least very rarely. Wells has pointed this out in a very interesting article and has shown how readily different conclusions may be drawn by pathologists whose material comes from a special field. This objection, however, does not materially affect the determination of age incidence in a particular organ, but only a comparison of the relative involvement of various parts of the body.

The material at our disposal comes from a broad hospital service, including outdoor minor surgery, general surgery, urology, gynaecology, oto-laryngology, etc. It therefore covers all parts of the body available for surgical removal of tissues, and demonstrates the proportions in which these lesions present themselves in a community. We therefore felt it would furnish some interesting and instructive data to compile from this material certain statistics, bearing on age incidence, extending over a period of several years. We have kept in mind, however, the dangers of drawing too positive conclusions where incidence and the laws of probability play a rôle. So far as we know, such statistics have never been compiled for carcinoma in Canada.

Our figures are obtained from the records of the Department of Surgical Pathology of the Royal Victoria Hospital, extending over a period of fourteen years, from 1915 to 1928. During this time all surgical specimens, with very few exceptions, were examined histo-

\* From the Pathological Institute, McGill University, Montreal.

logically. The exceptions consist for the most part of museum specimens of such a nature that it was considered advisable not to remove a piece of tissue. Only carcinomata positively diagnosed by sections are included. Wherever several specimens were received at different times from the same individual only one specimen was counted. Malignant histoid growths, such as sarcomata, were not included, nor were hypernephromata, chorioepitheliomata, endotheliomata, etc. An effort was made to confine the cases to straightforward malignant epithelial tumours; all border-line carcinomata, or so-called "pre-cancerous" changes, were disregarded, with the exception of the adenoma destruens of the uterus and the carcinoid growths of the appendix. Metastatic growths were not included unless the location of the primary growth could be determined positively, and then only when no specimen of the primary growth was received.

For convenience, the age groups were divided into periods of five years, starting at 25 and continuing through to 80. All patients up to 25 years of age are included in the first group; from 26 to 30 in the second group, designated '30', and so on. All patients over 75 fall in the '80' group. The ages recorded with the pathological specimens were compared with other records of age of the individual in the hospital, and wherever a discrepancy occurred the record of admission to the hospital was taken, as it was considered the most likely to be correct. The division into five-year periods was felt to be the optimum as it allowed for sufficient variation, and at the same time brought enough cases into most of the organ groups to construct a definite curve of incidence. The body was divided into the following subdivisions, which were found to include all specimens, with the exception of a very few extraordinary growths: lip, mouth, tongue, tonsil, œsophagus, stomach, gall-bladder, appendix, colon, rectum and anus; kidney, bladder, prostate, testicle and penis; ovary, tube, uterus, cervix, vagina, vulva and breast; face (skin), larynx and thyroid.

During the period from 1915 to 1928 a total of 22,993 surgical specimens were examined, of which 1,756, or 7.63 per cent were, or represented, primary cancerous growths. Of these 1,118, or 63.6 per cent, were from females, and 638, or 36.4 per cent, were from males. The

average age of all the cases was 53.5 years; that of the females 50.6 years, and that of the males 56.5 years, a difference of approximately six years.

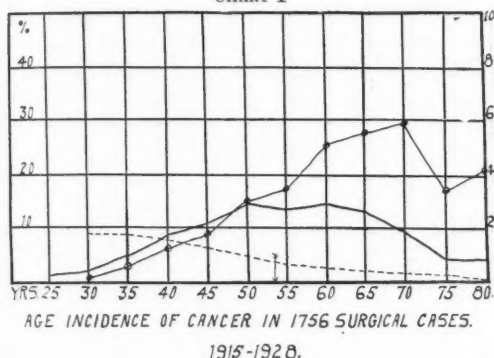
The average age of all cancer cases, both male and female, occurring during a single year, shows a remarkably constant figure, the lowest being 50.5 years and the highest 55.12 years. Comparing these figures for each year from 1915 to 1928 there was merely an irregular variation and nothing to suggest that toward the close of this period cancer tended to occur in younger individuals, or that the public as a whole, on account of being better informed, sought treatment at an earlier age.

In the five-year periods, the age incidence of all cases, both male and female, during the 14 year interval, shows a gradual increase up to 50 years, a fairly constant number through to 65 years, and then a rapid decline. This is graphically represented in Chart I, and it will be noted that there are two high points—one at 50 and the other at 60 years. This is apparently due in the former to the high percentage of females, and in the latter of males, occurring at each period respectively. Interesting, moreover, is the fact that in no single five-year period does the percentage of cases rise above 15 per cent of the total. One must bear in mind of course that the rapid decline in cases over 65 years of age simply signifies that the percentage of cases is then smaller and cannot be interpreted to mean that cancer is less prevalent in individuals of this age, for the total number of individuals living to this age is greatly decreased. Moreover, it is a well recognized fact that people in old age are less likely to undergo hospitalization. To express these points graphically we have introduced in this chart two additional curves—one (----) showing the percentage of people in Montreal which falls into the various age periods according to the last census (1921), and, secondly, a curve of ratio (—) between the percentage of these people and the percentage of cancer cases in each age group. It will be seen that the percentage of living individuals rapidly falls off, while the percentage of cancer cases holds up well into the sixties. Therefore, the ratio of cases to individuals is much higher and the probability of individuals who reach this age having cancer would appear to be considerably increased. We are fully cognizant of the



fact that many factors not represented here would affect this ratio of probability, and we are inclined to think that the fall in ratio after 70 is due to the lack of hospitalization in old age rather than to any actual decrease in cancer among the aged.\* On the other hand we feel, in spite of possible objections, that the ratio as drawn quite conclusively demonstrates this increasing probability in later life. In addition, we have inserted an arrow in this and the following charts to show the average age of the cases represented in the curve.

CHART I



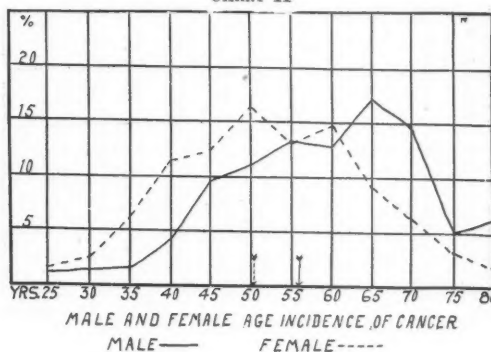
From Chart II we are able to draw comparisons between the two sexes as regards incidence. The curves represent the percentage of total cases in the different sexes falling into each age group. The two curves are strikingly similar in general character, with the outstanding difference that there is a shift in position of about five years toward younger age in the case of the female.

More detailed examination reveals some interesting points. The curve of incidence in the female from the start at 25 years is higher than in the male and reaches its highest peak at 50 years. It then tends to lessen slightly, reaching a second peak, though not so high as the first, at 60, and then falls to old age. The curve of incidence in males, on the other hand, shows practically no increase until the 40-year period is reached. From here the increase in incidence simulates that of the female, but reaches its first peak at 55. There is then a slight sag, though not so noticeable as in the female, and a second higher peak is reached at

65. This level is fairly well maintained to 70, and then there is a very rapid decline with a slight rise in old age. The two-point character of the curves would appear to be due to higher percentages of incidence in different organs, as we shall see later.

Turning to the involvement of various organs in this series, we find that the breast, with 455 cases, or 25.9 per cent, leads by far; next in number is the cervix, with 231 cases, or 13.1 percent; and, thirdly, the lip, with 125, or 7.1 per cent. This agrees with the statistics of

CHART II



various writers who have shown the breast to be the leading site of cancer. Others, however, do not agree and considerable evidence has been advanced to show a marked difference in different countries, particularly as to the ratio of mammary to uterine growths. The high percentage in this series is no doubt influenced by the statistics being derived from a hospital service; however, the figures are so high that they indicate a definite preponderance of breast cancer in this vicinity.

When we come to consider the age incidence in various organs some interesting points arise, as brought out by the accompanying graphs. These will be taken up separately.

Of the 455 cancers of the breast all but 1 were in females, an incidence in males of approximately 0.2 per cent. The youngest case was in a girl of 20, and the oldest in a woman of 81. As shown in Chart III, the curve of incidence rises rapidly between 35 and 40 and then remains, except for a slight peak at 50, at a practically constant level until 60, when it rapidly declines. This tends to agree with the findings of Schmidt, who places the mean age at 48. The chart brings out, moreover, that

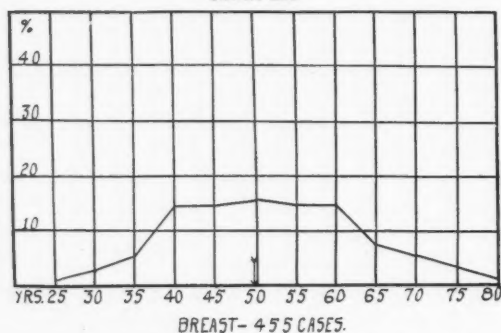
\*This is contrary to the views of Hoffman, who states that there are trustworthy data to sustain the view that very late in life the cancer death rate is lower than in earlier years.

in the breast, in contrast to some other locations, there is a comparatively long period (from the 40th to the 60th year) when the incidence remains fairly constant. The average age was 49.7 years. We have included here only definite carcinomata, not the so-called precancerous changes. The 455 cases compose 25.9 per cent of the series.

In the cervix, on the other hand, as shown in Chart IV, there is a definitely higher number of cases in early adult life. As in the breast, however, a level is reached at 40 years; this

cases, or 18.2 per cent in uterus and cervix combined. The ratio of body to cervical growths is approximately two to five. This figure shows a higher percentage of fundus involvement than is reported by most observers. Figures of less than 10 per cent are usually given; this may be due in part to our including some borderline cases of adenoma destruens which we felt could not be distinctly separated from carcinoma. The curve of age incidence, moreover, presents a distinctly different picture from that of the cervix; incidence is low up to

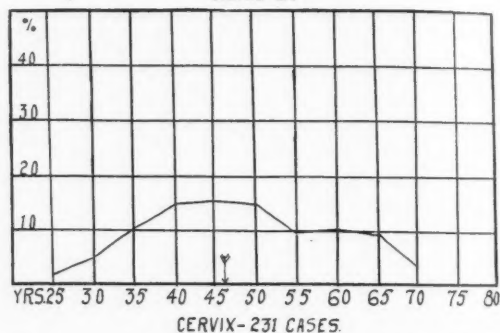
CHART III



continues fairly constant to 50 and then shows a sharp decline to 55, where a second level, extending through to 65, is reached. Whether there is any significance in the two-level character of the curve, it is difficult to say. It may, possibly, be a coincidence in this series; however, one would expect over 200 cases to establish a representative curve. The youngest case was in a girl of 20 and the oldest in a woman of 70. The 231 cases represent 13.1 per cent of the total, and were all but one of squamous-cell character.

Carcinoma of the body of the uterus, that is, arising from the endometrium, occurred in 90

CHART IV



45, reaches a peak at 60, and then rapidly falls with occasional cases during old age. The average was 56.1 years. Our youngest case was 32 years and our oldest 79 years. The two curves exemplify what is recognized clinically, namely, that carcinomata of the body of the uterus are predominately post-menopausal, while cervical growths occur principally toward the close of the child-bearing period. During the 14 years there were five cases of chorioepithelioma which, however, are not included here. These growths occur very often in the young adult woman.

There were 97 ovarian growths, or 5.5 per

CHART V

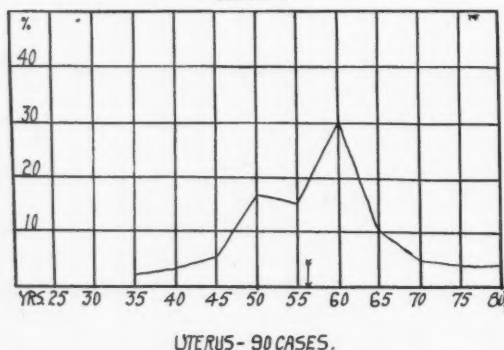
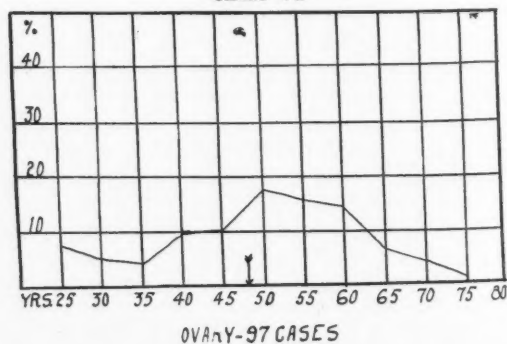


CHART VI



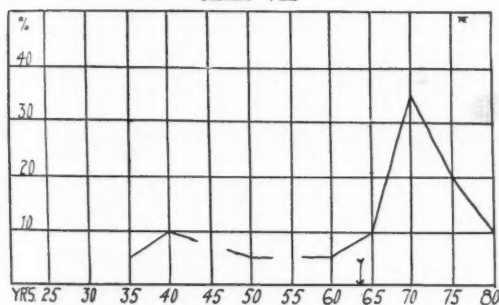
cent of the total. Here we meet the difficulty of combining several different types of growth, all of which may be considered carcinomata, and yet are not identical, nor do they represent the same pathological process. This is indicated in the curve (Chart VI) of incidence which starts at a rather high level, due to the embryonal carcinomata of early life, and then tends to fall. There is a distinct increase from 50 to 60, and this is due principally to the cystadenoma papilliferum malignum. The youngest patient was a child of 6 and the oldest a woman of 73. The average age was 47.1 years.

There were only 3 cases of primary carcinoma of the Fallopian tube, all in women about 50 years of age. Ten squamous cell

throughout late middle life which persists at a fairly high level into old age.

Fifty-one cases of carcinoma of the prostate are recorded. This number, which represents 2.9 per cent of the total cases, in no way represents, of course, the true frequency of involvement of this organ, as many cases go unoperated upon, or even undiagnosed, as any autopsy service will show. The curve of age incidence, however, displays clearly the well known characteristic of such cancers to occur late in life. The maximum number of cases is not reached until the 70-year period, as shown in Chart IX. It should be borne in mind that less than 2 per cent of the male population falls in this age group. The youngest case was in a man of 42, and the oldest 82.

CHART VII



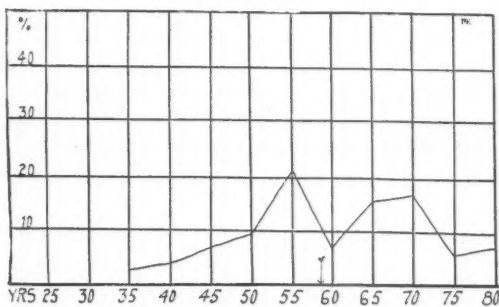
VULVA - 20 CASES.

growths of the vagina occurred. Three were in women about 40 years of age, and possibly represented extensions from the cervix, which it is difficult to exclude; the remaining 7 were in women over 60 years. Twenty cases of carcinoma of the vulva occurred. They were almost entirely in women over 65, as indicated in chart VII. This region above all others in women shows a preponderance in old age.

Turning to the genito-urinary service, there were 14 cases of carcinoma of the kidney; all but 2 of these occurred in males. Two were in young people between 25 and 30, while the rest ranged between 40 and 65 years of age. The highest number occurred in the 45-year period.

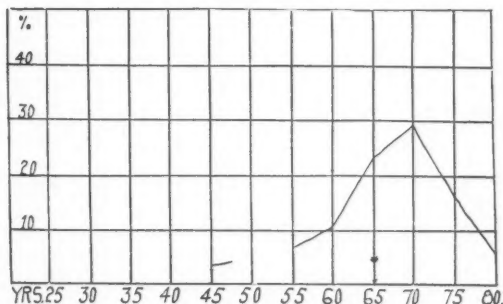
The bladder was the seat of the growth in 51 cases, or 2.9 per cent. There were 35 males to 18 females, approximately 65 and 35 per cent, respectively. The youngest was a man of 33 and two cases at 79 were the oldest recorded. The average age was 58.7 years. It will be seen by Chart VIII that there is a gradual increase

CHART VIII



BLADDER - 51 CASES

CHART IX



PROSTATE - 51 CASES.

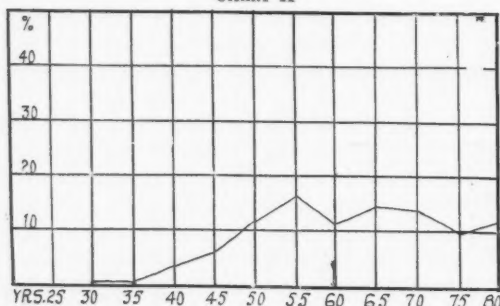
There were but 6 cases of carcinoma of the testicle, and, as in the case of the ovary, these represented several different types and were scattered through the various age periods.

The penis was involved in 12 cases, which, like the prostate and vulva, showed a great preponderance in old age. Two cases occurred in comparatively young men, of 39 and 41 respectively, while the oldest, and incidentally the

oldest case of cancer in our complete series, was in a man of 99.

The gastro-intestinal tract, representing a series of organs all of which are subject to cancerous growth in a varying degree, was involved in 565 cases, or 32.2 per cent of the total number. Males predominate greatly so far as the upper portion is concerned, while in the case of the abdominal viscera with one exception, namely, the gall-bladder, there is a much more even distribution between the two sexes.

CHART X



LIP - 125 CASES.

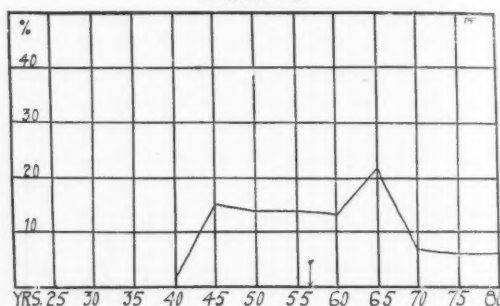
Starting with the lip, we find 125 cases, or 7.1 per cent, of which all but five were in males—a ratio of twenty-four to one. The curve of incidence (Chart X) shows a steady rise from the youngest case at 30 to the 55-year period, then a fairly constant level through senility. This would, therefore, suggest an ever increasing ratio of incidence to male population as the years go on. Curiously enough, there is not the same persistence in old age in mouth cases.

The mouth, including the tongue, had a total of 175 cases, or 9.9 per cent. Of these the tongue was involved in 79 cases, only 7 of which were in women. The curve (Chart XI) of incidence in the tongue shows a rapid rise in the early forties, from which a fairly constant level is maintained, except for a rise at 65, until old age. No case under 40 years of age was reported in the series.

Under the mouth are recorded all the remaining cases of this region except the tonsil. This includes gums, dental structures, salivary glands, pharynx, etc. The curve (Chart XII) of age incidence, as one will readily see, is distinctly different in character from either that of the lip or tongue, and in a series of nearly a hundred cases we feel that there must

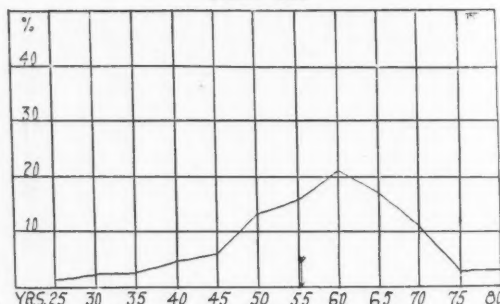
be some significance in this difference. Evidently in the structures included here we are getting away from that predominatingly senile character which is met with in the lip and to a less extent the tongue. Eleven of the 96 cases, or 11.5 per cent were in women. The earliest case was that of a carcinoma of the gum at 27, from which the curve of incidence gradually rises to a peak at 60, and then falls to old age. The 7 cases of primary tonsil involvement in our series all occurred in males, with 4 of the 7 about the 60th year.

CHART XI



TONGUE - 79 CASES.

CHART XII



MOUTH - 96 CASES.

Proceeding to the œsophagus the percentage of cases in females shows a marked rise, 12 of the 29 cases, or 41 per cent, being in women. The youngest case was in a woman of 29 and the oldest in a woman of 69. There is nothing extraordinary about the curve of age incidence (Chart XIII), which shows the majority of the cases to be between 50 and 65 years.

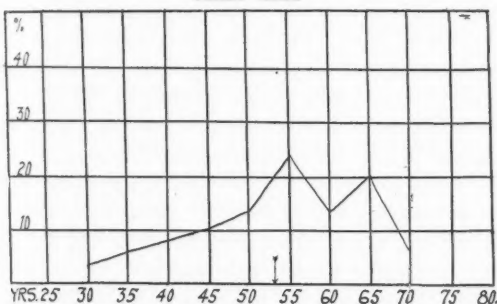
Our series includes 35 cancers of the stomach. As in the case of the prostate, this small number in no way signifies the frequency of growths in this location, as many cases go unoperated upon. The ratio of males to females



is approximately two to one. Three cases occurred in individuals before the 30th year, indicating a relative frequency for this location in early life, while the highest percentages were reached between 55 and 65 years (Chart XIV).

Ten cases of carcinoma of the gall-bladder were all in females. This agrees with the findings of Ewing, who reports a ratio of four or five to one. The percentage of cases (less than 1 per cent) seems remarkably low, however, for statistics derived from surgical material.

CHART XIII

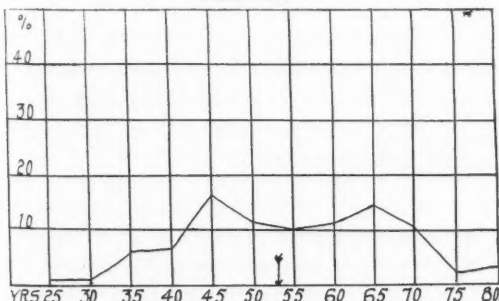


OESOPHAGUS-29 CASES.

Kaufmann reports the gall-bladder as the seat of from 5 to 6 per cent of all carcinomata. This figure is certainly higher than our experience with surgical and autopsy material here in Montreal would suggest. None of our cases were under 40 and there was a fairly even distribution through the age groups up to 70 years.

Seven cases of carcinoma of the appendix were met with, all of the carcinoid type, and all but one occurring in young adults before the 35th year. We hesitate to include these growths in the series, as their carcinomatous nature is questionable.

CHART XV

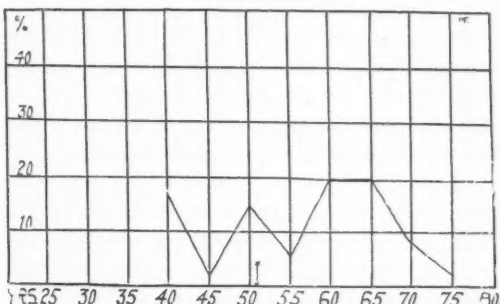


COLON-86 CASES.

There were 96 cases of involvement of the colon, or 5.5 per cent. These were almost equally divided between males and females. The curve of age incidence (Chart XV) shows occasional cases in young adults and the attainment of a high level comparatively early (45 years). This level tends to sag during the fifties, reaching a high point again at 65, with occasional cases in old age. This curve, as others previously noted, thus shows a definite two-point character.

The curve of rectal growths (Chart XVI)

CHART XIV

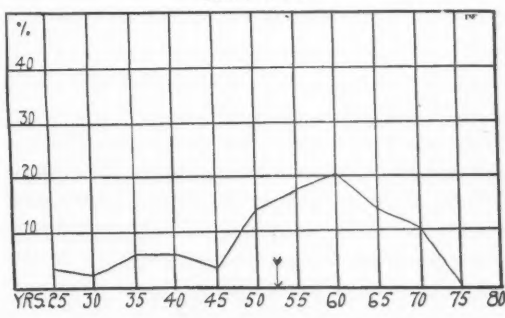


STOMACH-35 CASES.

forms an interesting contrast. The youngest case was a male of 24 and the oldest a woman of 86. The average age of the 96 cases was 53 years. Rectal carcinomata occurred in 77 cases, or 4.4 per cent. The ratio was four males to three females. The curve of age incidence shows a fairly even distribution up to the age of 50, then a rise which reaches a peak at 60 years. Three cases occurred at the age of 24; the average was 52.1 years, females 49.1 years, and males 54.6 years.

Three cases of squamous-cell carcinoma of the anus occurred, one in a woman of 56 and

CHART XVI



RECTUM-77 CASES.

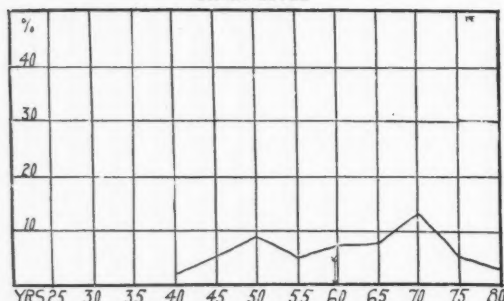
the other two in men of 67 and 72 years.

The 12 cases of carcinoma of the larynx all occurred in males; the youngest case was 26 years of age, and the average age, 53.2 years. On the other hand, of the 8 cases of carcinoma of the thyroid there were 6 females to 2 males. All cases were over 40 years of age, the average being 53.2 years.

There still remain for consideration the carcinomata of the face, with which we have included five primary cancerous growths from other portions of the skin surface. Of the total of 125 cases, 58 were of squamous-cell and 67 of basal-cell type, a fairly equal division. Ninety-two were in males and 33 in females, or a ratio of about three to one. Of the growths in males there was practically an even division between squamous-celled and basal-celled growths, while in females the basal-celled type was more numerous, in the ratio of two to five. The average age of both growths was 60 years—59 in the male and 65 in the female. In the males the squamous-cell growths averaged 58.9 years and the basal-cell growths 59 years; in the females the squamous-cell growths averaged 60.6 years and the basal-cell growths 65.8 years. These figures suggest, therefore, a dis-

we find, as would be expected, that the appendix with its carcinoid growths comes first with an average of 32.1 years. Following this in order are the kidney, 42.8 years; the cervix, 46.3 years; the ovary, 47.1 years; the testicle, 48.3 years; and the breast, 49.7 years. Between 50 and 55 years are the rectum, 52.1; Fallopian tube, 52.6; stomach, 51.5; larynx, 53; œsophagus, 53.2; thyroid, 53.2; gall-bladder 54.6; and the colon, 53 years. Between 55 and 60 are the mouth, 55.6; uterus, 56.1; tongue, 58.1; bladder, 58.7; vagina, 58.9; face (squamous-celled), 59.2; and lip, 59.7. The remaining organs which are the latest to be involved are the tonsil, 60.7; the face (basal-celled), 60.8; penis, 63.1; vulva, 63.4; and last of all, the prostate and anus with averages of 65 years. The above order of occurrence in various organs shows distinctly that carcinomata arising from glandular epithelium tend to occur on an average earlier than those from squamous-celled epithelium. There are, however, two striking exceptions to this rule, namely, the cervix in the female and the prostate in the male. In the cervix we have a squamous-cell carcinoma occurring predominately in the early period, while in the prostate we have a growth arising

CHART XVII



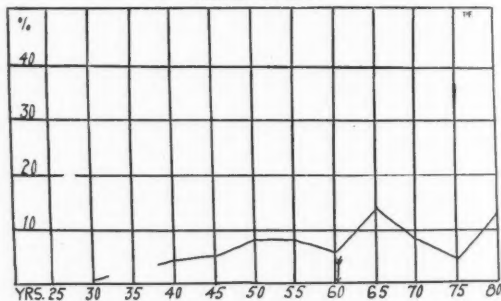
FACE—50 CASES.

SQUAMOUS CELL CARCINOMA

tinued tendency for a basal-cell carcinoma to occur at a later age in women, while in men there is no appreciable difference in age between the two types. The curves of age incidence of the two types (Charts XVII and XVIII) show essentially the same picture, and depict the senile character of the growths in this region. A distinct rise in incidence in the basal-cell type is present in very old people.

In comparing the average age at which carcinomata in different parts of the body occur,

CHART XVIII



FACE—67 CASES.

BASAL CELL CARCINOMA

from glandular structures, the highest incidence of which occurs in old age. This fact becomes even more interesting when we recall that in both of these organs the epithelium is derived from mesoderm.

#### CONCLUSIONS

We might add, in conclusion, as we stated before, that we are reluctant to attempt to state positive facts from statistical material. In fact, we feel that this study re-emphasizes

the difficulties and possible fallacies of statistical conclusions. We feel, however, that the above analysis, while it does not positively establish them, suggests several interesting points which should be borne in mind in the consideration of age in relation to cancerous growths. To recapitulate, the more important of these are briefly as follows:

1. That from year to year cancer is not occurring on an average in younger individuals.
2. That education of the public has not caused earlier hospitalization to a sufficient degree to appreciably alter average age figures.
3. That cancer in the female occurs on an average about five years earlier than in the male.
4. That while there are fewer cases of cancer in individuals over sixty, the probability of having the disease increases for those who live beyond that age and this probability very likely continues to increase as the years go on.
5. That in this vicinity there is in hospital

cases a definite preponderance of cancer of the breast as compared with other organs.

6. That, in the uterus, cervical growths are principally pre-menopausal; endometrial growths, post-menopausal.

7. That carcinoma arising from glandular epithelium tends to occur earlier in life than that from squamous epithelium, with two main exceptions, namely, the cervix and prostate, which derive their epithelium from mesoderm.

Many of these and other points brought out by these statistics are common knowledge, based on clinical experience, but it may be of advantage to have such information available, as here presented, in a more precise, didactic form.

#### BIBLIOGRAPHY

1. WOLFF, J., *Die Lehre von der Krebskrankheit*, Gustav Fischer, Jena, 1929.
2. HOFFMAN, F. L., *The Mortality from Cancer throughout the World*, The Prudential Press, Newark, 1915.
3. WELLS, H. G., *J. Am. M. Ass.* 88: 6, May 2, 1927.
4. EWING, J., *Neoplastic Diseases*, Saunders, Phila., 1928.

### CLINICAL EXPERIENCE IN THE INJECTION TREATMENT OF VARICOSE VEINS, AND ALLIED CONDITIONS\*

By T. ORMISTON SMITH, M.D.,

*Toronto*

IN the *Canadian Medical Association Journal* of November last a very careful resumé of the literature on the treatment of varicose veins by injection was presented by L. H. McKim, but there was no mention of clinical experience. Another paper on the subject was published in the *Journal* of May, 1929, by H. G. Pretty, in which a number of case histories are recorded, but little actual assistance has so far been given to the uninitiated in carrying out the treatment. In view of the fact that patients suffering from this condition are still being subjected to surgical measures which are far surpassed by this method, it is felt that a short account of the technique and a discussion of practical considerations might make this form of treatment more generally popular.

The writer has had no more grateful patients under any circumstances than those relieved by

the injection treatment. Many of these are pleased because they have been completely relieved of constant suffering by a method which has been unaccompanied by even temporary discomfort or loss of time, after they had become almost discouraged. Others express their delight over the achievement of a cosmetic triumph better than they felt they could expect. Surely no medical man suffering from varicosities would request operation in preference to this treatment, and this consideration should help one to decide for his patients, to their advantage.

The following synopsis of a case record is recorded as an illustration. Six months have elapsed since treatment, a fair allowance of time to test the efficacy of the treatment in regard to recurrence.

#### CASE REPORT

Mrs. A. T., aged 47 years; occupation, housework; admitted to hospital, September 29, 1928; discharged, October 27, 1928. This patient was brought to hospital because she was an out of town patient, and because of

\* Received for publication on July 25, 1929.

the necessity of dressings for ulcers on both legs, which discharged continually. She is, however, the only patient thus far who has been hospitalized. The history of varicosity dates back sixteen years, the condition appearing first on the left leg after her second boy was born. The varicosity got rapidly worse till it was about as advanced as at the present time, and ached so badly that at times it prevented her from working. A small "sore" appeared about thirteen years ago, and gradually increased in size instead of healing. She applied a great variety of ointments in the course of time, without success as regards healing. She was under medical care four years ago, when there was "inflammation present from the ankle to the knee." The doctor ordered rest and antiphlogistine applications, but at no time was the ulcer completely healed. The veins never became as bad on the right leg, but a small ulcer appeared about two years ago and has been present ever since, accompanied by a constant pricking sensation.

She had had two children, and three miscarriages due to malposition of the uterus. She had always worked hard. Except for "lumbago" 2 years ago her history had been uneventful.

Examination revealed a small woman, underweight, careworn, but "wiry." The lower teeth showed pyorrhea. General physical examination revealed no abnormalities except on the lower extremities. There was a large ulcer about 3 by 6 c.m., above the internal malleolus on the left leg (Fig. 1), and a small punched

ber 2nd an attempt was made to find the veins implicated by injection and aspiration (see technique) at the proximal extremity of the ulcer, but the veins were too small. Subcutaneous injection of 0.25 c.c. of Genevriev's solution was made just proximal to the ulcer, and the vein running up the medial border of the tibia was injected at three sites about 3 c.m. apart, 0.75 c.c. of the solution being used. (This patient had taken quinine before on occasions without reactions.) The introduction of the needle about the ulcer was excessively painful, but the intravenous injections were not painful and no reaction occurred. The following day there was redness along the course of the vein but this had cleared up again by the next day. By October 10th the ulcer, which had been exposed daily to ultraviolet rays and dressed with vaseline, showed a film of skin over it, almost completely covering the whole area. On this date a vein medial and anterior to the ulcerated area was injected, and two injections were made into a vein proximal and anterior to it, close to the previously injected vein on the tibia. Subcutaneous injection was made also just proximal to the ulcer on the right leg, as it was impossible to find a vein. A distended vein above this ulcer was injected as well at this sitting. On October 12th the film of new skin over the ulcer seemed thicker but not completely healed over. An adhesive dressing was applied to protect the new skin edges. The smaller crater, like the ulcer on the right, showed no change. On October 15th the large ulcer on the left



FIG. 1.—The ulcer as at October 2, 1928 when treatment was begun.

out ulcer occupying the corresponding position on the right side. There was only moderate varicosity of the internal saphenous vein on each side. The veins were small, thin-walled and quite superficial. There was the usual brawny induration on the medial surface of the leg, and the mark of an old healed ulcer on the right leg. No œdema was present. The Wassermann test was negative. Urine examination showed no abnormality.

The ulcers were cleaned with alcohol and treated with ultra-violet radiations (5 minutes at 30 inches for several days). The lower teeth were extracted. No noticeable decrease in size of the ulcers occurred, even though confinement to bed was insisted upon. On Octo-

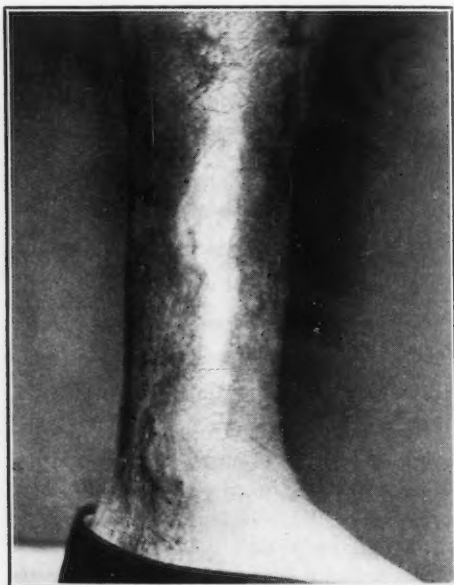


FIG. 2.—Showing the ulcer completely healed 13 days after injection treatment was instituted. It had resisted all forms of treatment for 13 years.

ber 2nd the ulcer on the right leg was completely healed, and a photograph was taken. (Fig. 2). The smaller one on the right leg was almost healed. On October 17th injections were made into varicosities on the feet and behind the malleolus. Several more injections were made into veins about the left calf. On October 18th the ulcer on the right leg was healed over. October 25th; the saphenous vein at the mid-thigh and a knot of veins on the left calf, and a superficial dilated knot were injected. October 26th; there was no reaction and the patient was discharged.

At Christmas this patient wrote a most grateful letter, saying that she had had no further trouble and



was highly delighted. She was seen on April 12th and was in the same satisfactory and satisfied condition.

There is no convincing argument against this form of treatment, unless it be incomplete acquaintance with the technique and contra-indications. The only prerequisite is the ability to enter a vein with a needle under conditions of careful preparation. Therefore, it is felt that no patient need be denied relief by any practitioner who is not too busy or too prejudiced to absorb the simple rudiments here offered. Anyone who can administer intravenous medication will find the technique easy; indeed, the discovery of the method was made in this way, Linser using mercury bichlorides for syphilis, Genevriér quinine, and Secord salicylates.

#### CONTRA-INDICATIONS

The contra-indications are rare in the usual run of cases seeking treatment. The only really thrombosed leg (femoral or iliac vessels) makes itself known by dilated veins in the groin and lower abdomen, which afford a striking picture, as illustrated by Forrester. It need scarcely be mentioned that interference would be rash indeed in the presence of such a condition, or after a recent thrombosis or inflammation affecting the area of the proposed injections. Compensatory dilatation in the lower leg might occur, but is not mentioned in the literature.

Ulcers and eczema due to varicose conditions are of course usually infected, but antiseptic solutions may be applied, and the results obtained in these conditions present a most striking argument for, rather than against, treatment by this method.

The œdema of nephritis or systemic disease seldom enters into the consideration, but the œdema in decompensation of cardiovascular disease makes treatment of varices extremely difficult, as many of the veins are concealed by the œdema and obliteration of the few in evidence is probably useless because dilatation of other veins will follow and nothing is to be gained, according to most authors. Arterial obliterative conditions must also be considered in the examination.

Pregnancy complicates the consideration, but relief need not be denied at any stage if sufficient discomfort be present. Ordinarily, it is preferable to defer treatment until after the puerperal period, but in the presence of symp-

toms there is little reason for postponement. Late in pregnancy one might wish to avoid quinine but it has been injected without bad effect (Douthwaite), and there must be but little that enters the general circulation when properly injected. This applies also during menstruation, although injection at this time is considered unwise by some writers. Linser's solution (20 per cent sodium chloride) or sodium salicylate solutions might be preferred as an alternative. It might be objected that the dilatation seen in pregnancy is due to physical obstruction and would therefore improve after delivery, but as a matter of fact, only partial improvement may be expected. A patient with varicose veins arising from a tumour in the pelvis presented an example of simple obstruction, and the condition improved after operative removal, but she came two years later for relief.

It would seem that in all cases varicosity is due anatomically to impaired action of the valves first described by Sylvius. Bernstein, however, contends that "in beginning varicosities 71 per cent have competent valves". Presumably this statement, made by McPheeters,<sup>2</sup> is an inference made from Bernstein's observation of a negative Trendelenburg sign in these patients. McPheeters adds "The aspiratory effect upon the blood in the enlarged varicose vein is not sufficient to draw this greater volume of blood from the enlarged vein", but he does not explain the primary cause of dilation and, so far, no satisfactory explanation has been offered. Whatever this primary factor may be, endocrine inadequacy, toxæmia, or simply hydrostatic pressure in excess of toleration, which weakens the muscular tone of these veins and allows dilation to occur, the hopelessness of obtaining a flow against gravity is seen when the function of the valves has been impaired. It is submitted that sufficient change may occur to produce partial leakage under stress though not sufficient to show in such a crude test as that of Trendelenburg. Be that as it may, it is found that the history is that of progressive development rather than improvement, varicosity having once occurred. Even when the vessels return to normal or nearly normal size after the relief of pressure, as upon the termination of pregnancy, these patients are doomed to gradual progressive recurrence or a more rapid exacerbation, de-

pending upon the strain they impose upon the vessels.

Certain it is that the stage of definite impairment of the valves marks the beginning of the period when the veins develop the potentialities for the vicious cycle of disordered circulation.

The Trendelenburg test is not considered a necessary step in considering which veins are suitable for injection, but it is evidence of an interesting phenomenon which explains the poor nutrition of limbs with varicose veins, and the reason for ulcer formation or other complications, such as eczema, to which these limbs are prone. This test shows that the direction of the blood flow may be retrograde, and the assumption has been verified by Jentzer.<sup>7</sup> For this observation he used strontium bromide, according to Forrestier<sup>5</sup> who used iodized oil himself, and followed its course similarly by the fluoroscope, but merely reports that its progress was slowed up. Hope Carlton<sup>2</sup> outlines the vicious cycle established by describing the escape of femoral blood into the saphenous vein at its opening, and the return of unoxidized blood into the limb by means of this reverse current.

One can readily imagine that in the erect position the force of gravity would prove too much for the *vis a tergo* in the absence of valves, but it is interesting to find the phenomenon occur after injections made in the horizontal position. The writer has obtained definite thickening and "veinitis" in the whole extent of a vein of the lower leg, including the tributaries, by only one injection into the vessel at its proximal extremity, just below the knee, with the patient in dorsal decubitus.

Forrestier also observed that upon contraction of the muscles of the limb in active movements the blood is aspirated into the deep veins where circulation is efficient, and here again clinical observation is in accord.\* Were the useful veins not protected by rapid dilution and transportation of the irritating fluid injected, the result would be disastrous to the limb. Instead,

an *immediate improvement* in the circulation is seen to occur after injection, unpleasant symptoms disappear and healing of ulcers promptly begins.

#### TECHNIQUE

It is felt that this consideration is not emphasized sufficiently in its relation to the technique of injection. Linser, in 1925, advised beginning the injections below the knee "to block the pathological circulation of blood. This relieves the varices further down and gives the patient relief at once. Then all the varices of the leg are treated in succession, and if there are any in the thigh they are treated also." Most authors, except Patterson Brown,<sup>1</sup> for some reason advise beginning distally, but this makes the procedure more tedious and more difficult, and the purpose of this article is to popularize the method by simplification of the technique. The use of a tourniquet will then be found unnecessary and its use is really contra-indicated because the vessels should be as empty as possible. Elevation of the limb after injection, with the above considerations in mind, would seem to be contra-indicated as well. Simple relaxation in the dorsal decubitus has been adopted by the author in all cases. The advantages of this position, in comfort both to the operator and to the patient, are obvious, and the relaxed condition of the vessel is considered best for injection. Later, if small vessels at the extremity need to be treated, a pneumatic tourniquet that can be immediately released upon entering the vein may be used on rare occasions. It is best applied proximally first; the proximal vessels may be injected and the tourniquet removed and re-applied lower down the leg until these vessels are all injected.\*

Of course, a complete examination is indicated before considering injection. Then the history is enquired into and recorded. The whole limb must be exposed with the patient erect before an estimate of the condition can be obtained, and the rare instance of complete thrombosis with dilated veins in the groin communicating with the abdominal circulation will then readily

\* McPheeters<sup>10</sup> has recently (July) confirmed these observations and demonstrated the effect of respiration upon deep and superficial vessels. In expiration particles of lipiodol in the deep veins were aspirated centrally but there was no movement in the dilated saphenous vein. Upon increasing intra-abdominal pressure however, in inspiration, the column in the varicose superficial vessel moved slightly toward the distal end of the extremity.

\* In Germany a small metal ring is sometimes used to shut off a section of vein. The blood in this section is aspirated and injection made into the collapsed vessel. A similar result may be obtained by digital pressure applied by an assistant and will be found of advantage in resistant cases.

be ruled out. It will be found useful to mark with a dot or small cross, while the erect position is maintained, or, at any rate, when the leg is dependent, the points where injection is intended (usually the most markedly dilated sections of veins), as the appearance of these vessels may be found to change very noticeably upon recumbency. This is done at each treatment and in this way one can properly estimate the effect of past injections and indicate the suitable injections for the present sitting. In number these should not exceed four or five on each limb. One might say the "head" or "mouth" of the veins, that is, the proximal dilated extremity, is usually chosen as the site for injection, but at times, and especially when concluding treatment, dilated knots of veins will be sought. Some consideration should be given the first injection as a happy choice of a suitable vessel will obtain the confidence of the patient and make a lasting impression. Usually, only one injection should be made at the initial treatment and only a minimum quantity of the solution injected to guard against idiosyncrasy, if some of the fluid be absorbed. Therefore a varicose vein of only moderate size should be selected, in order to obtain the best result.

Ordinary fountain-pen ink has been found suitable for marking the sites for injection, and the patient is then made comfortable in the reclining position. Tincture of iodine, 2 per cent, is then applied to these areas by means of a brush, in order to avoid wiping off the ink markings. The method of sterilization of the skin is optional, but little fear of infection need be entertained when one is sure of the sterilization of his syringe and needles, and care is taken to avoid handling the needle or palpation for veins after the skin is prepared. This palpation is made unnecessary by the markings referred to and entry of the vessels may be made with assurance if one directs the needle exactly through the centre of the mark and *perpendicular to the surface of the skin*. A slanting injection has no advantages and makes for confusion, and frequently will mean missing the vein or merely tearing it and setting up subcutaneous oozing. In certain areas the vessels may be markedly tortuous and movable, as frequently found just below or just above the malleoli, and it will be found useful to press the skin away from the

needle with the thumb and forefinger of the left hand, being careful, of course, not to move the central point indicating the site of the vein selected. This holds the vein in position and a quick thrust with the needle with force judged sufficient just to pierce the skin, will usually obtain a successful puncture of the vein. As soon as the skin has been pierced suction is to be applied, and if a flow of blood commences injection is slowly carried out. Only a small amount of blood is allowed to enter the syringe but the pressure of the flow will afford an indication that will be appreciated with but little experience. If no flow is obtained a second quick thrust is indicated, but if the needle has passed at all deeply the pressure on the skin should be relieved by raising the left hand and the needle should be very slowly withdrawn with suction applied, until blood is aspirated, for one may have pierced both walls of the vessel. Injection may still be performed satisfactorily, however, for even in these cases, when using quinine solution, the only undesirable effect will be slight pain at times from leaking, it would seem, through this perforation. A clean puncture may usually be obtained, however, with slight practice and some care, and then injection is not accompanied by pain. This technique of course applies particularly to the treatment of smaller veins, which may be found quite difficult of entry otherwise, even with a tourniquet, but it has been found useful in the injection of larger veins as well and is recommended as a good routine.

The type of syringe to be used is not an important factor, as almost any good 3 c.c. or 5 c.c. glass syringe with good suction will be found satisfactory. The syringe recommended in *The Lancet* (Sept. 1, 1928, p. 452), manufactured by Charles King, 34 Devonshire Street, London, is particularly suited to this work and is worth obtaining. Burroughs, Wellcome offer a similar syringe in the small 1 c.c. size, and from them may be purchased the proper Record needles for these two syringes. If Luer syringes be used suitable needles are very readily obtained, as this type of syringe is more popular to-day.

With a plain glass syringe one obtains suction by grasping the syringe with the left hand, after piercing the skin and withdrawing slightly, then maintaining this relative position, if a



further attempt at puncture be necessary, by allowing the finger to extend along the piston and come in contact with the barrel. This may be done with the same facility as in holding a pen and similar control is obtained.

The newer steel needles have been found of considerable advantage, and with them a fresh needle for each injection is quite unnecessary. A small bore only is required, only as large as that used for subcutaneous vaccines being found necessary (about 26 gauge), but it is considered important to employ needles of comparatively short bevel, rather less than is used in the latest hypodermic needles. It is well to boil several for each patient, whereas the same syringe may usually be employed throughout if sterile water be at hand for rinsing purposes. The most important requirement is that the needle be sharp and after a needle has been used a few times it may be said that it is no longer so.

Rarely will pain be complained of upon injection, except in hypersensitive individuals. Such individuals are met with, however, and even the sight of the needle is alarming to some patients. It may be found useful in certain cases, therefore, to make a cutaneous wheal for the first few injections when it is necessary to gain the patient's confidence and assure him that the injection of the solution is not accompanied by pain, and that entrance of this needle is not more serious than the novocaine needle, as the same small needle is used for both. One must be careful not to pierce the vein during the novocaine injection or he may find himself within the lumen of the vessel. Aspiration is performed in each case, therefore if the vein be punctured inadvertently, and if one obtains blood, the novocaine syringe is removed and the other syringe applied to the needle *in situ*, and the sclerosing solution injected. Novocaine must not be injected into one of these vessels. McPheeters warns against shock in such instances; therefore, a different syringe should be used for novocaine. Hope Carlton, however, employs 0.5 per cent tutocaine in certain of his solutions injected. In only one patient did the author find it necessary to perform infiltration, subcutaneous as well as cutaneous injection, before the patient could be satisfied, but such a necessity must be exceedingly rare. Infiltration may be used, however, where perivascular injection is contemplated.

Pain is an interesting symptom in these cases. Some of the most marked dilatations and tortuosities are productive of no complaint of pain whatever, even upon great exertion or prolonged walking, and the patient comes to the surgeon merely because of the unsightliness of the extremity, or because he is "afraid of rupture" of some of the vessels. In other cases very small dilatations are accompanied by marked discomfort, or in some cases real neuritis. Often a varicose ulcer will produce symptoms out of all proportion to the signs of abnormality in evidence, and in many cases, the varicosity may be quite inconspicuous.

There is present in some of these cases "neuralgia" as severe as that of toothache, and the mechanism may readily be the same. The clinical picture is that of the painful ulcers of the malleoli described by C. F. Corlette. The writer, however, has so far found it unnecessary to resort to undercutting as described by this author. Instead, there has been satisfactory response to quinine injections. When the search for varicose vessels has been unsuccessful, the injections are made under the base of the ulcer, rather more deeply than is ordinarily considered "subcutaneous," following the suggestion of Douthwaite. These "perivascular" injections will frequently be found useful in ulcer cases which do not respond immediately and have been recommended lately as routine by Hope Carlton. It is possible that the irritant fluid produces its effect by destruction of the nerve fibre, the effect sought by Corlette, but it is also submitted that undercutting proximal to an ulcer would produce an interruption of the vessels appertaining to the ulcer and part of the good effect produced may be due to obliteration of unobserved varicosities. At any rate it is felt that the needle offers a more convenient and less alarming method of treatment of these ulcers and that this form of attack might be given first consideration, other means being held in reserve if the response be inadequate. The writer has long had this operation in mind since "undercutting" has been recommended for some time by German authors (Nussbaum and Weber) who combined circumferential section, to free the ulcer, with (open) stretching of the sensory nerve trunks of the region. More recently René Leriche recommended in addition to this procedure his now famous operation of periarterial sympathectomy in resistant cases, combined, if need be, with local skin graft. The indications for such operations must be rare indeed when the veins are eliminated as a possible factor in all cases. Unna's paste may be used following injection in very difficult cases, when rest in bed cannot be maintained as recommended by Géza de Takats.<sup>14</sup>

Pain is produced to a greater or less extent with all the solutions except quinine solution, combined as it is with urethane.\* It may be truly said that this injection is painless, except when a slip in technique has occurred. Even on perivascular injection but slight and only momentary pain is produced, and this advantage is accompanied by a second consideration which makes it the solution of choice; it has not the great tendency to produce sloughing that is admitted by those who employ other solutions. The writer has employed quantities up to 0.5 c.c. in numerous subcutaneous injections about ulcers or about the malleoli, and in situations where the vessels were too small to obtain entrance, and has obtained results that were wholly felicitous.

#### QUININE SOLUTION

Experience with this solution has removed all hesitation, then, in recommending quinine solution for routine use, and it is felt that only when familiarity with its effects has been

\* Quinine hydrochloride, grm. iv; urethane, grm. ii; distilled water, 30 c.c.



gained should other solutions be resorted to, in certain instances where they may be considered preferable. There are other advantages to commend this solution. It is clear and fluid, not viscid, and antiseptic properties are claimed for it. Nearly every author who has used this preparation speaks favourably of the effects obtained by it, and no cases with a fatal termination have as yet been reported following its injection; whereas various reactions must be guarded against with other solutions. It is easily procured, may be prepared quite readily, or it may be obtained in ampoules ready to use. Idiosyncrasy to quinine may usually be eliminated by the history, and reaction is not serious in any case where small quantities are used for the initial injection.

Next to quinine solution, a hypertonic glucose solution (50 per cent) and sodium chloride in 20 per cent solution, may be considered. Injection of the former is becoming more and more popular but the latter is followed by pain running down the limb. This is not too severe, however, and might be minimized by the addition of tutocaine (0.5 per cent), according to Carlton. Larger quantities of these solutions are used, about 5.0 c.c. being considered suitable for a large vein. Several cases of pulmonary embolus have occurred with hypertonic saline, however, and none are reported from quinine solution. Pure carbolic acid is used routinely by Dalton,<sup>3</sup> and in several cases where it has been used by the writer really dramatic results have been obtained and a disappearance of the injected vein in record time, though it proved disappointing in one case which was very resistant. Mercury is too dangerous altogether when there are such comparatively innocuous alternatives. Sodium salicylate in 30 per cent and 40 per cent solutions is an alternative that finds great popularity, and is especially useful in very marked dilatation of the veins, in quantities about the same as for quinine solutions.

Occasionally, aching and mild tenderness may appear, but usually there is only stiffness upon rising on the following morning. While an inflammation is produced in the vein it is a chemical inflammation and is seldom accompanied by periphlebitis. Small localized knots of veins have proved more troublesome than extensive marked varicosities of the whole limb from the standpoint of discomfort pro-

duced by the process of sclerosis, and it may be truly said that the more advanced the dilatation and tortuosity of the vessels the less the disturbance caused by treatment. Owing to the prevailing fashions in stockings and short skirts, however, many patients with small knots of veins and symptomless varices seek their removal, and no hesitation need be entertained in attacking the situation by this method as a good result is assured, if caution be observed.

#### VARICOCELE

Varicocele has been found to respond very readily to quinine injections, and the technique which has been found most serviceable is as follows: The varicosities are palpated in the dependent position, (with the patient standing), and the most prominent mass is held between the thumb and fingers of the left hand. The cord may be readily distinguished and thus avoided. Tincture of iodine is applied with the brush as above, and then procaine infiltration is proceeded with, being careful to advance the needle slowly, *while injecting*, so as to avoid piercing the vessels. With the needle *in situ* the novocaine syringe is detached and a syringe with quinine urethane solution attached in its stead. Then suction is applied, as outlined above, and short quick jabs are made until blood is aspirated, when about 0.5 c.c. of solution are injected. If desired, more than one such injection may be made at the same visit, though only one should be made at the first. Perivascular infiltration of the sclerosing solution has been found to be without effect in these cases. The patient should lie down for a few minutes after the needle is withdrawn, in order to avoid hæmorrhage inside the scrotum, though there is little tendency to oozing on account of the adrenalin contained in the anæsthetic solution. Collodion is applied immediately after withdrawing the needle and an ordinary suspensory is found useful for several days after each treatment, as there is formed a hard swelling at the site of injection, and sometimes some swelling distal to this, if the parts are not supported. A number of these injections may be required. Weekly intervals are best for the observation and estimation of effect, and after several treatments it will be found necessary to wait for a month or so to elapse before the result can be judged properly. If then some

veins are found, a further injection is indicated, and soon the patient may be relieved of the necessity of wearing a suspensory and of the dragging pains which accompany the condition. In one patient these pains, which had been present for some years, were relieved by the first injection.

A similar treatment is particularly suitable for hydrocele. The fluid is first aspirated and then with the needle *in situ* an injection of the sclerosing solution is made, the amount depending upon the size of the sac. Quinine and urea hydrochloride, 5 per cent, will be found suitable for this injection, or the old classical injection of a drop or two of pure carbolic acid may be essayed, if it be determined that the patient be not one of those individuals who are susceptible to the gangrene produced in some patients by this drug. If recurrence takes place, it is quite as easy to repeat the treatment, and usually it may be more accurately estimated. Treatment by this means has proved successful, also, to the delight of the patients in cases of recurrence following operation.

Similarly, these irritating solutions may be used in cases of ganglion instead of iodine as recommended by Carp and Stout.<sup>22</sup> Quinine-urethane solution would be very suitable, it is thought for treatment by injection of the troublesome condition of hæmangioma of the deep vessels of the extremities. It has been prone to recur following surgery. The solution could be injected perivascularly, deep into the capillary plexus, or under direct vision when complete resection has been found impossible, and it is felt that it would prove more effective than radium or x-ray radiation in these cases on account of the peculiar affinity that quinine seems to possess for endothelial tissue.

#### HÆMORRHOIDS

Quite a large percentage of patients who present themselves with varicose veins for treatment will be found complaining of hæmorrhoids, and they frequently ask if similar treatment for this condition be not feasible. Injection treatment for hæmorrhoids has been very well described by Morley<sup>18</sup> of England, and is recognized as an established procedure which is eminently satisfactory in suitable, uncomplicated cases. No one who has experienced the condition or observed the effects of this treatment as compared with surgery would recommend the mutilating, excruciatingly painful methods of the past in dealing with this condition. It is most encouraging to find what an extensive involvement can be expeditiously

reduced and permanently cured by injection, again without loss of time from work or pain at the time of treatment, or subsequently. In this condition, more than in varicose veins of the legs, the physician himself is frequently personally interested, and is found to constitute a fairly large percentage of the clientèle, incontestable proof of his attitude towards the operation. Galvano-cautery is the only form of treatment which approaches injection in advantages offered and result secured.

The technique is standardized and accepted now, and it will be found that weak solutions of carbolic acid in oil or in glycerine are popular, but quinine and urea hydrochloride in 5 per cent solution is adhered to for an alternative, and is recommended in preference by some writers. Great care must be exercised in selecting the cases, as many patients come for treatment when the condition is acute, and inflammation may be aggravated by this treatment if carelessly administered. Examination with the speculum is necessary, and injections should be made only under vision with such exposure, as it is distinctly necessary to begin injections at the proximal (oral) extremity of the hæmorrhoid. Brinkerhoff's speculum is recommended, but, in England, Kelly's and Lockhart-Mummery's specula are used. Ordinary rectal specula without windows for examination and exposure of the wall are useless. A long needle is required, preferably with a curved end and shoulder, and injection is made into the submucous layer sufficient in amount to produce blanching, 0.25 to 0.5 c.c. being required. Injection in all four poles is recommended by Morley at each sitting, and a minimum quantity is used in each quadrant, but usually only one or two injections are found suitable. Especially at first, one must guard against doing too much. If the condition be acute and congestion marked, one is well advised to use an adrenaline-anæsthetic ointment on the examining finger and on the speculum, and to use great care in introducing these into the rectum. However, a suitable injection, if it can be made at this time, will produce immediate relief from bleeding and from pain in many of these cases, and subsequent injections are made with great facility. One simply repeats until all congestion and pro-

trusion is cleared up, usually three or four weeks being required, when weekly intervals are allowed. Injection must not be continued to the mucocutaneous junction, and no attempt must be made to treat external hæmorrhoids by this method, but it has been found that any such attempt is quite unnecessary, as the so-called hæmorrhoids dwindle to mere skin tags which require no further treatment when the œdema disappears upon relieving the congestion above.\*

It is advisable to perform these injections in the evening, as activity is found to be productive of unpleasant symptoms in certain cases. Patients are therefore instructed to return home and lie down or retire, and it is seldom that any discomfort is complained of upon rising the following day, or subsequently.

Palpation after three or four weeks shows firm, hard nodules at the areas of injection, usually elongated masses running longitudinally in the four quadrants of the rectal wall. They are found to disappear one to two months after injection, and the patient becomes progressively more comfortable and volunteers the information that the lumen is greatly increased. Hæmorrhage and protrusion usually disappear following the first, or, at most, the second treatment, and defæcation is correspondingly facilitated.

Aaron<sup>15</sup> recommends injection at the four poles in turn with a week's interval between, well above the hæmorrhoidal area, disregarding the protrusions themselves. He claims that cases ordinarily considered advanced enough for Whitehead's operation can be treated by this method. Bensaude and Oury<sup>16</sup> make similar injections, with definite reservations as to the median raphe.

#### HERNIA

The above experiences with sclerosing solutions led to a trial of Ignatz Mayer's treatment of hernia by injection. A suitable patient with an inguinal recurrent, direct hernia, with very little sac or protrusion, presented himself and was acquainted with the possibilities and induced to submit to this treatment, using Mayer's solution.

\* The writer has had experience only with Morley's solution and quinine-urea. Quinine-urethane is not recommended for this treatment.

A very definite fibrous lump could be made out at the site of injection upon returning after a week's interval, and subsequent injections have added their increment so that it is hoped that the sac may become adherent and fibrous tissue may be induced to close off the ring, when the truss may be discarded, in several months' time. It will be readily seen that there are many cases of hernia in which such a simple treatment would prove a great boon indeed, but it is of course too early to report on this case. F. Wysz, of Zurich, has recently reported a series of 4,632 cases injected by Steffen, using absolute alcohol as an irritant, and states that 90 per cent of all hernias treated, inguinal, femoral and ventral, showed permanent cure (no recurrence since 1918), after this ambulatory form of treatment.

#### BIBLIOGRAPHY

1. BROWN, K. P., *Edinburgh M. J.* (N.S.) **35**: 472, Feb. 1928.
2. CARLTON, H., *Practitioner* **122**: 254, Apr. 1929.
3. DALTON, P. P. *Brit. M. J.* **2**: 1037, Dec. 8, 1928.
4. DOUTHWAITE, A. H., *The Injection Treatment of Varicose Veins*, London, W. K. Lewis, 1928.
5. FORRESTIER, J., *J. Am. M. Ass.* **90**: 1932, June 16, 1928.
6. GENEVRIER, *Le Monde Médicale*, p. 611, 1922.
7. JENTZER, *Congrès Français de Chirurgie*, 1925. (Ref. Thornhill, R., *Practitioner* **120**: 54, Jan. 1928).
8. LINSE, *Die Therapie der Gegenwart*, p. 66, 1925. (Ref. Thornhill, R., *Practitioner* **120**: 54, Jan. 1928).
9. MCPHEETERS, H. O., *Surg. Gyn. & Obst.* **45**: 541, 1927.
10. MCPHEETERS, H. O., AND RICE, C. O., *Surg. Gyn. & Obst.* **49**: 29, July, 1929.
11. CORLETTE, C. E., *Surg. Gyn. & Obst.* **48**: 811, June, 1929.
12. LÉRICHE, R., *Ann. Surg.* **88**: 449, Sept. 1928.
13. NUSSBAUM AND WEBER, (quoted by Harttung, *Arch. f. klin. Chir.* **149**: 3, 1928).
14. DE TAKATS, G., *J. Am. M. Ass.* **92**: 775, March 9, 1929.
15. AARON (quoted by Price).
16. BENSAUDE, R., AND OURY, P., *La Presse Médicale* **36**: 706, June 6, 1928.
17. LOCKHART-MUMMERY, J., *Diseases of the Rectum and Colon*, London, Baillière, Tindall and Cox, 1923.
18. MORLEY, A. S., *The Lancet* **1**: 543, March 17, 1928.
19. PRICE, W. H., *Clin. Med.* **33**: 160, March, 1926.
20. TERREL, E. H., *Trans. Am. Proct. Soc.* p. 71, 1925.
21. WHITCOMBE, W. S., *Brit. M. J.* **2**: 1035, Dec. 8, 1928.
22. CARP, L., AND STOUT, A. P., *Surg., Gyn., & Obst.* **47**: 460, Oct. 1928.
23. MAYER, I., *M. J. & Rec.* **125**: 528, 596, 672, 1927.
24. WYSZ, F., *Schweiz. med. Wchnschr.* **59**: 85, Jan. 26, 1929.

## METABOLISM IN DEMENTIA PRÆCOX

BY G. H. STEVENSON, M.B.,

*Medical Superintendent,*

AND J. C. THOMAS, M.A.,

*The Ontario Hospital,**Whitby, Ont.*

MANY observations on the basal metabolic rate in dementia præcox have been recorded. In reviewing these, one is impressed most by the variations in basal metabolism in this type of psychosis.

Bowman *et al.*<sup>1</sup>, in a study of ten patients with dementia præcox, obtained readings below -10 per cent in 7. In 5 of these 7 the rate had increased to -10 per cent or higher in 6 months.

Bowman and Grabfield<sup>2</sup> reported 5 cases of dementia præcox, all showing lowered metabolism. They believe that simple hypothyroidism is not the explanation of the abnormally low basal metabolism. The ages of these patients were 15, 14, 16, 15, and 24 years.

Raphael *et al.*<sup>3</sup> give an analytical report of a case which presented the gradual development of an acute schizophrenic catatonia and almost complete recovery, which further manifested marked vagotonia and hypo-adrenalism and to a lesser degree hypophyseal, and thyroid inadequacy, with evidence of general metabolic depression. This patient was aged 14. The basal metabolic rate was -21 to -29 per cent. After 5 months the patient began to improve, and was discharged in nine months. The basal metabolic rate was +5 per cent.

Gibbs and Lemcke<sup>4</sup> report that definitely abnormal basal rates were found in psychotic patients in the more acute phase of their psychosis. Their studies were made on cases admitted not more than two years previous to their report. The variations from the normal were greater in dementia præcox than in manic depressive psychoses. The patients did not show sufficient evidence to explain the findings in terms thyroid or pituitary disorders.

Farr<sup>5</sup>, in a study of 100 mental cases, found that 28 were below normal and 13 above. In 35 cases of dementia præcox of relatively short duration, with little deterioration, 37 per cent were below -10 per cent and 17 per cent were

+10 per cent or higher. He believes that these figures suggest some endocrine imbalance in this disease. He also observes that his not very extensive therapeutic trials with thyroid extract and thyroxin have produced no definite improvement.

Walker<sup>6</sup> studied 30 cases of dementia præcox over a period of two years. The majority of cases were examined at varying intervals and under different conditions. Fifty per cent of his cases had a basal metabolic rate less than -10 per cent; the range of variation extends from -12 per cent to -47 per cent with an average of -20 per cent. No material change was noted in mental or physical condition as a result of the administration of thyroid gland extract. He noted a rise toward a normal basal metabolic rate with the disappearance of vagotonic symptoms in those cases in which an onset of remission was observed.

Whitehorn and Tillotson<sup>7</sup> report a tendency toward low values for basal metabolic rates in dementia præcox. Two cases of their series are given in detail. One, Miss J., aged 30, showed a rate of -9 per cent as an average of 15 determinations, begun after one year from admission and carried on intermittently for a period of two years. Another, Mr. T., aged 18, had a rate of -13 per cent as an average of 16 determinations, which began 5 months after admission and lasted a little over two years.

Bowman and Fry<sup>8</sup> found that of 24 cases of schizophrenia 7 showed abnormally low readings (the lowest -30 per cent); 18 of the 24 cases showed minus readings, while 14 of the 24 cases were within normal range  $\pm 10$  per cent and only two cases above normal.

Langfeldt<sup>9</sup> found a low basal metabolic rate in 7 out of 8 cases of acute catatonia, and in 4 mixed cases. The basal metabolism was approximately normal in all but one of the other cases in his series of 40 dementia præcox patients. In



a few cases, attempts to readjust the basal metabolism with endocrine gland products were unavailing.

Bowman<sup>10</sup> found a low basal metabolic rate in 11 cases; 10 cases showed readings of -10 per cent to -1 per cent; the two others in the series were  $\pm 0$  and +2 per cent. All of these cases were admitted about two years previous to the published report.

Hoskins and Sleeper<sup>11</sup> found in a study of 80 cases that 43 fell below -10 per cent. The remaining 37 cases all fell within the normal  $\pm 10$  per cent. No case studied gave a reading above +10 per cent. The extreme range was -29 per cent to +6 per cent.

Fischer<sup>12</sup> discusses the relation of changes in the basal metabolic rate to the different stages of the schizophrenic process. The specific dynamic action of protein was also studied. In incipient schizophrenia a decrease in the specific dynamic action of protein was found with a lowering of basal metabolism following it. It may rise afterward, but the basal metabolic rate remains low throughout the disease. With the

This review of some of the recent work on metabolism in dementia præcox brings out a few points common to all observations. There is some indication that lowered basal metabolism prevails. This finding is noted most frequently in young cases and recent admissions to hospital. Lowered basal metabolism appears to be related to the acute phases of the psychosis, with a tendency to return to normal when the psychosis clears up. The evidence in regard to any endocrine gland as an etiological factor is contradictory.

A study of the basal metabolism was undertaken at the Ontario Hospital, Whitby, in dementia præcox patients. Only well marked and uncomplicated cases were observed. These patients were all in good physical condition, but all were underweight according to a standard weight chart. The apparatus used was of the closed circuit type designed by Jones<sup>13</sup>. The values recorded are the averages of four or five observations, depending on the co-operation of the patient and the agreement between successive readings.

Case No.	Date of Onset	Present Age	Observed Weight	Predicted Weight	Nutrition	Height	Pulse Rate	Blood Pressure		Basal Metabolic Rate
					Per cent			S.	D.	Per cent
114	1920	38	140	165	-15	70	88	150-100		+16
201	1897	70	130	158	-18	66	66	105-70		+25
653	1903	47	110	144	-24	64	68	95-70		+4
635	1914	49	120	160	-25	66 $\frac{3}{4}$	75	121-92		$\pm 0$
137	1899	60	124	145	-14	65	70	115-88		+15
214	1918	34	115	128	-11	60 $\frac{1}{2}$	64	101-65		+14
179	1902	57	119	154	-23	66	60	160-100		+27
654	1908	42	153	158	-4	67	72	120-80		-2
154	1893	66	141	158	-11	67	82	141-95		+1
222	1911	46	122	170	-28	70	72	160-100		+3
602	1913	41	107	136	-22	62	66	80-42		+9
2589	1925	25	122	149	-18	68	60	110-75		-20
3888	1929	22	135	144	-6	67	60	110-90		+6
3886	1929	28	140	140	$\pm 0$	65	84	130-95		+1
3885	1922	26	145	158	-8	69 $\frac{1}{2}$	72	114-90		+1
3542	1928	25	135	153	+1	64	55	110-80		-4

cessation of acute symptoms the metabolic disturbances remain for a while, then show a tendency to return to normal. With the occurrence of a new attack, a repetition of the changes takes place. In cases which improved after the acute attack, but left some defect, the basal metabolism continued low, and at times there was a lowering of specific dynamic action. The lowering of the basal metabolic rate came on from a few weeks to two months after the onset of the psychosis. A rise in the basal metabolic rate, according to Fischer, should be looked on as a good prognostic indication and vice versa.

After the evening meal on the previous day the patients received no food, and were kept in bed the morning of the tests until the determination was completed. All precautions were taken to avoid disturbing them while preparing them for the actual test.

Much confusion has arisen over the relationship of lowered metabolic rates to dementia præcox. Each investigator offers an explanation in accord with his own findings. In our series of 16 cases studied, the duration of the psychosis ranged from less than 1 year to 36 years with an average duration of 15 years. Accepting the

normal variation as  $\pm 10$  per cent, ten of our series were within normal limits, and only one was below  $-10$  per cent. Five were above normal limits. Four of our cases were recent admissions, all of whom showed a normal basal metabolic rate.

#### COMMENT

This study was made on a group of patients suffering from dementia præcox, all of whom were advanced to a state of extreme mental dilapidation, with the exception of four cases of more recent onset who were tested for purposes of comparison with the advanced cases. Dementia præcox presents a great diversity of characteristics, and there is no unanimity on the part of investigators as to the pathology or the etiological factor. Briefly, it may be stated that there are three conceptions of this strange malady. There are those who regard it as an organic brain disease in the nature of a degeneration, a type of change akin to that seen in Friedreich's ataxia or Huntington's chorea. The second group regard the condition as the expression of a subtle but profound toxæmia, emanating from one or more sources, or resulting from some disorder of the chemical processes of the body. The present investigation on metabolism is prompted by this conception, but does not indicate any marked deviation from normal limits of the metabolic rate.

The third hypothesis would view dementia præcox as a reaction on the part of the weak organism to the stresses and difficulties of life, whether these be physical, emotional, or en-

vironmental, or all three combined. It would thus be related to hysteria, but whereas hysteria represents a compromise with reality, dementia præcox represents defeat and regression to a more primitive level.

#### CONCLUSIONS

Our study does not indicate any constant or definite alteration from normal metabolism in the subjects of dementia præcox. It would appear that the metabolic rate varies with the nature of the symptoms, the emotional state of the patient, and the stage of the disease.

#### REFERENCES

1. BOWMAN, K. M., AND EIDSON, J. P., *Bost. M. & S. J.* **187**: 358, 1922.
2. BOWMAN, K. M., AND GRABFIELD, G. P., *Arch. Neurol. & Psychiat.* **9**: 358, March, 1923.
3. RAPHAEL, T., PARSONS, J. P., AND WOODWELL, W. N., *Arch. Neurol. & Psychiat.* **9**: 471, Apr. 1923.
4. GIBBS, C. E., AND LEMCKE, D., *Arch. Int. Med.* **31**: 102, 1923.
5. FARR, C. B., *Arch. Neurol. & Psychiat.* **12**: 518, Nov. 1924.
6. WALKER, J., *J. Mental Science* **7**: 47, Jan. 1924.
7. WHITEHORN, J. C., AND TILLOTSON, K. J., *Bost. M. & S. J.* **192**: 1254, June, 1925.
8. BOWMAN, K. M., AND FRY, C. C., *Arch. Neurol. & Psychiat.* **14**: 819, Dec. 1925.
9. LANGFELDT, G., *Endocrine Glands and Autonomic Systems in Dementia Præcox*, J. W. Eides Boktrykkeri, Bergen, 1926.
10. BOWMAN, K. M., *J. Nerv. & Ment. Dis.* **65**: 465, 1927.
11. HOSKINS, R. G., AND SLEEPER, F. H., *Arch. Neurol. & Psychiat.* **21**: 887, 1929.
12. FISCHER, S., *Arch. f. Psychiat.* **83**: 205, 1928.
13. JONES, H., *Clin. Med. & Surg.* **35**: 478, July, 1928.
14. STEVENS, A. A., *Practice of Medicine*, 2nd. Edit., p. 403, Saunders, Phila., 1928.

**GRAPE JUICE AND ACIDITY OF THE URINE.**—The body is essentially an acid-producing organism. One of the most important of the energy-yielding biochemical reactions is the oxidation of the carbon contained in food materials to carbonic acid. The metabolism of the sulphur and phosphorus in proteins likewise yields end-products that are acid. In spite of this recognized tendency to the production of acids, the slightly alkaline reaction of the blood and body fluids is maintained with great efficiency. Not only do the buffer systems in blood and tissue fluids maintain an almost constant reaction, but, in addition, the lungs and kidneys are active in removing acids. Obviously, then, there is a constant demand for base in the body; the food constitutes the ultimate source of the required alkali. Vegetables and fruits yield an alkaline ash in the laboratory, and a similar behavior has been demonstrated in many instances in the body. Indeed, it has been shown that oranges, apples, pineapples and tomatoes, fruits with juice of more or less pronounced acidity, yield alkali in the course of metabolism sufficient to change the reaction of the urine. That this

type of action is not characteristic of all fruit juices, however, has recently been shown again by Pickens and Hetler, who examined, among other things, the acidity of the urine in human subjects who had drunk large quantities of grape juice. When, under carefully controlled experimental conditions, as much as a quart of grape juice daily was ingested, neither the titratable acidity nor the hydrogen ion concentration of the urine was significantly altered. This is not the only example of the failure to decrease the acidity of the urine by a fruit with an alkaline ash. Blatherwick has shown that the ingestion of prunes, plums and cranberries results in an actual increase of acidity of the urine, owing, probably, to the content of benzoic or other similar acids in these particular fruits. One puzzling aspect of the behavior of the unfermented, sweetened grape juice used in these studies is the fact that raisins are known to decrease the acidity of the urine. In view of the growing tendency to adopt dietotherapeutic alkalization by means of fruits and fruit juices, it is well to point out that not all fruits are effective in this regard.—*J. Am. M. Ass.*, April 5, 1930.

THE SIGNIFICANCE OF HÆMOPTYSIS IN THE DIAGNOSIS  
OF THORACIC DISEASE\*

BY WILLIS S. LEMON, M.D.,

*Division of Medicine, The Mayo Clinic,  
Rochester, Minn.*

## INTRODUCTION

ONE of the most impressive changes that has occurred in medicine in recent years is the lessening of the value that is given to symptoms in the diagnosis of disease and the increasing value that is given to signs. At present, physicians are agreed that there is no single symptom or any combination of symptoms that infallibly is indicative of any single disease.

TUBERCULOSIS AS A CAUSE OF PULMONARY  
HÆMORRHAGE

When symptoms referable to the circulation or respiration occur they always create alarm in proportion to their unexpected occurrence, their spectacular appearance, and the preconceived opinion of the patient and of his physician. Let one but see a profuse hæmorrhage from the lungs and the diagnosis of tuberculosis is likely to be the immediate response. Hæmorrhage occurs in 50 per cent or more of all cases of tuberculosis. Given this high incidence and the relative frequency of the disease, then the appearance of hæmorrhage is equivalent to a diagnosis of tuberculosis in the great majority of cases. The exact percentage of cases in which hæmorrhage actually indicates tuberculosis is hard to establish. It depends on the admission rules of the institution in which the patients are cared for, and varies from 8.78 to 86 per cent. These figures are given by Lord in his comparison of his own and Stricker's series. The lower figure represents the percentages of cases in which hæmorrhage was found to be due to tuberculosis in an institution which does not admit frankly tuberculous patients, and the higher figure the similarly derived percentage in 900 soldiers who previous to the hæmorrhage had been presumed to be healthy.

THE NECESSITY OF STANDARDS FOR THE DIAGNOSIS  
OF TUBERCULOSIS

It seems permissible to digress and discuss briefly other symptoms that formerly were thought to be pathognomonic of tuberculosis. These include fatigue, nervousness, irritability, a rapid pulse rate after exercise, a low blood pressure, loss of energy and weight, anorexia, and unstable temperature, anxiety, insomnia, and a decline in the sense of well being. Such symptoms, however, are the common accompaniments of many morbid conditions, from chronic nervous exhaustion to hyperthyroidism. It may be as accurate to say that the persistence of fever without an accompanying lesion is as diagnostic of non-tuberculous disease as the occurrence of hæmorrhage is diagnostic of tuberculous disease. The longer fever exists as an isolated symptom and unaccompanied by the presence of a demonstrable lesion, the less likely is it to be due to tuberculosis. Hardly a week passes without my being impressed with the truth of this statement. It is often difficult to convince a patient that he has not tuberculosis; it is less difficult to excite his resentment by telling him that he has chronic nervous exhaustion from overwork, anxiety, stress and strain. For this reason, certain standards must be set up so that the diagnosis of tuberculosis may be proved rather than surmised. All such standards are more or less artificial, and therefore they should be simple. Heise divided his diagnostic criteria into two parts, one for non-clinical pulmonary tuberculosis and the second for clinical.

The non-clinical requirements are: (1) no persistent râles in the upper half of the chest; (2) a parenchymatous x-ray lesion not explainable by other causes; (3) tubercle bacilli never found in the sputum; (4) complement-fixation test for tuberculosis positive or negative; (5) the patient may or may not react to the subcutaneous tuberculin test after injection of 10 milligrams (once repeated) of O.T.; (6) all evidence of focal re-

\* Read before the Ontario Medical Association, Hamilton, May 28 to 31, 1929.

action by physical signs (râles) or x-ray must be absent; (7) no history of unexplained hæmoptysis of a teaspoonful or more; (8) no history of unexplained pleurisy with effusion; (9) symptoms must be absent.

Any one or more of the following are his criteria for clinical tuberculosis: (1) persistent râles in the upper half of the chest; (2) a parenchymatous x-ray lesion; (3) tubercle bacilli in the sputum; (5) focal reaction, as determined by x-ray after the subcutaneous tuberculin test of 10 milligrams (once repeated) of O.T., or less; symptoms must have been present at some time; (8) an unexplained history of hæmoptysis of a teaspoonful or more, together with, an unexplained history of pleurisy with effusion.

Such a simple list of requirements, if considered at the time of examination of every patient, would not prevent an early diagnosis of tuberculosis but would add immensely to accuracy of diagnosis; accuracy is much more essential than early decision. In my opinion, every person who bleeds from the lungs should have one of two accompanying signs to justify the diagnosis of tuberculosis: (1) a lesion of the upper lobe, demonstrable by clinical examination, or by roentgen-ray study, or (2) sputum that contains bacilli of tuberculosis. There are certain reservations to be considered: (1) a patient may have bacilli of tuberculosis in the sputum and no other evidence of disease; (2) he may have a lesion, not in the upper lobe but at the hilum or at the base, and still be found to be tuberculous by special methods of examination, such as inoculation of guinea pigs, histological demonstration of tubercles in tissue removed either by bronchoscopic examination or by excision of lymph-nodes; (3) he may have a combination of diseases, such as mitral stenosis with tuberculosis, primary or metastatic malignant disease with tuberculosis, aneurysm with tuberculosis, or any of the malignant lymphomatous diseases with tuberculosis; or (4) he may have non-tuberculous suppurative disease combined with tuberculosis. In these cases, tuberculosis may be asymptomatic, healed, quiescent, or active, and may or may not be responsible for the hæmorrhage.

#### THE NECESSITY FOR ACCURATE DIAGNOSIS AND THE DESIRABILITY OF A POSITIVE OPINION

I have already expressed the opinion that accurate diagnosis is more essential than an early diagnosis which is the result of emotion rather than of logical deduction, of the evaluation of symptoms rather than of signs, of the subtle changes in sound heard or believed to be

heard on general examination rather than based on the signs of a lesion proved by more exact methods. In support of this opinion are reports of physicians who in America and in Europe are best qualified to have views on the subject. Heise gave his experience with general examination at Saranac Lake, as follows:

Do râles occur with sufficient frequency in minimal tuberculosis for us to say pulmonary tuberculosis is present or absent according to their presence or absence? This is unquestionably an important thing to decide. To determine this question for my personal satisfaction an analysis was made to see just how reliable they were for diagnosis. A total of 1,877 tuberculous individuals were examined for entrance into Trudeau Sanatorium. All diagnoses were confirmed after complete examinations. The presence or absence of râles was noted upon their initial chest examination.

There were 351 minimal cases almost all of which had definite x-ray changes, but only 145 of these, or 41 per cent, were found to have definite or questionable râles upon first examination. In short, at the stage of pulmonary tuberculosis most amenable to treatment and of most value to detect, râles were absent in more than one-half of these individuals. Therefore, it cannot be said that the absence of râles should be used as the sole criterion for the absence of pulmonary tuberculosis. If in no other way the value of the x-ray for the diagnosis of pulmonary tuberculosis can be shown in the detection of early pulmonary tuberculosis, stereoscopic x-ray films should always be taken. However, for non-tuberculous pulmonary diseases this does not always hold true.

When 1,299 moderately advanced cases (classification of 1922) were considered, it was found that 980, or 75 per cent, possessed râles. Thus, one-fourth would have missed diagnosis had the occurrence of râles been the only criterion. For far-advanced cases, the râle might safely be used, for in 203, or 89 per cent, of 277 cases, râles were found. But even here it can justly be said that the x-ray film will give a much better or more complete diagnosis than the ear.

Rist's opinions are best expressed in his own words in an address given during his visit to The Mayo Clinic in October, 1926:

I shall give some figures which give an idea of the number of mistaken diagnoses in the French and British armies. In 1916, I was Army Consultant in a clearing station for patients with pulmonary disease at Compiègne. Of 192 patients in whom tuberculosis had been diagnosed, fifty-three (27.5 per cent) really had the disease. This included patients with the active, arrested, and healed tuberculosis. In 1917, I presided over a board in central France which re-examined all men exempted or discharged from military service to see if they were still incapacitated. Six hundred and eight had been exempted or discharged on account of tuberculosis: however, only 109 had active, healed or arrested forms of the disease. The reports from the Public Health Commission in England tell a similar tale. In 1921, of 150 ex-service men in the Chest Hospital 78.4 per cent were not tuberculous; of those who were, ten had an arrested form of the disease which required no treatment. From the headquarters of the Swiss and Italian armies similar results have been reported. Dr. Friedrich von Müller tells me that the condition in Germany was much the same, and I have been told that the United States and Canada have also had



to face the problem. Since the War, the condition has remained practically the same. I have been working in a large tuberculosis dispensary in Paris. Among 1,000 cases taken at random, 62 per cent had diseases not related to tuberculosis. This inaccuracy in diagnosis results in a tremendous loss of time and money for the community. The result of preventive work in the families of non-tuberculous persons may do much harm. If the person is really ill no sacrifice is too great to cure the disease and guard the family, but the loss of ideals, ambition, the separation of parents and children, the curtailment of education and interference with marriage may be the result of the failure to recognize conditions other than tuberculosis.

#### OTHER CONDITIONS THAT SIMULATE TUBERCULOSIS

It is proper to concede that hæmorrhage from the lungs is most commonly the result of a tuberculous lesion. This is because of the frequency of that disease, however, rather than because bleeding is more common in tuberculous than in non-tuberculous disease. Vinson and Moersch, studying the cases that have been seen in The Mayo Clinic, made the following observations (see Table):

INCIDENCE OF PULMONARY HÆMORRHAGE\*

	Cases	Hæmorrhage				
		Slight	Moderate	Severe	Very severe	Multiple
Tuberculosis	29	11	15	3		11
Bronchiectasis	49**	20	15	9	5	24
Mitral stenosis	18***	10	5	2	1	12

\* One hundred consecutive cases of each disease were selected in compiling the tabulation.

\*\* Following exertion in four cases. In two cases precipitated at any time by physical strain.

\*\*\* Following exertion in seven cases.

Almost all diseases of the lung may produce bleeding of some degree. Lord recognized the difficulty in deciding on the exact order of frequency in incidence, but has discussed the cause of hæmoptysis in the following tentative order: (1) pulmonary tuberculosis; (2) chronic passive congestion; (3) pneumonia; (4) pulmonary infarction; (5) abscess, bronchiectasis and gangrene; (6) aortic aneurysm; (7) new growths, primary malignancy or metastatic growth within the lung; (8) mechanical injuries, including foreign bodies, penetrating wounds, fracture of ribs, and (9) lesions of trachea and bronchi, including ulcerative lesions due to tuberculosis, syphilis, malignant disease or nodes of the hilum, or stones in the lung perforating into the bronchi.

I have seen all of the varieties listed by Lord. Some patients have appeared with an erroneous

diagnosis of tuberculosis and some of these had spent long months in sanitariums, to their own disadvantage; furthermore they have occupied sanitarium space which should have been given to patients frankly tuberculous and who were excluded because of crowded conditions.

#### REPORT OF CASES

In selecting case histories for illustrative purposes, I have taken only those patients who have had a hæmorrhage from the lung at one time or another, and who have had a diagnosis of, or who have been treated for, pulmonary tuberculosis. Necessarily, this illustrative list must be incomplete. I have not selected for report those cases which were easy to diagnose. I have excluded silicosis, actinomycosis or other mycotic disease; infarction following passive congestion or surgical operations; empyema whether peripheral or interlobar; hepatic abscesses due to amœbæ or echinococcus cysts that penetrate the diaphragm and invade the lung, to cause either sinuses or lung abscesses; acute diseases such as pneumonia of whatever etiology; hæmorrhages due to whooping cough; traumatism or disease of the upper respiratory tract, including the larynx; hæmorrhages due to inhaling of irritating fumes, and to diseases of the blood itself.

A negative diagnosis of tuberculosis is always unsatisfactory. Every possible means must be used to arrive at a positive opinion of what disease is present, to the end that the patient's uncertainty may be banished and that suitable treatment may be promptly initiated. All patients who have unexplained pulmonary hæmorrhage and who, after exhaustive tests, I believe to be frankly non-tuberculous, are submitted to bronchoscopic study. This examination permits of visualization of the lumen of the bronchus, examination of its contents, and removal of secretions and foreign bodies or of tissue for study.

#### CASE 1

A man, aged 26, came for examination because of a gradually increasing cough of unknown etiology that had appeared each morning for the previous two years. He had expectorated blood six months before registration and frequently had seen blood-streaked sputum. He had had one hæmorrhage of a volume of 30 c.c. of pure blood two weeks before examination. This hæmorrhage had followed heavy work. At other times, the sputum was very small in amount and pain in the left side of the chest of pleuritic type was the only other significant symptom. During the two years, he had lost only 5 pounds in weight, and he had not been disabled enough to prevent his carrying on an ordinary occupation.

General examination gave negative results, and examinations of the sputum were negative for tubercle

bacilli. The roentgenogram of the chest gave negative results. Because of the repeated occurrence of hæmoptysis in an otherwise healthy person, a bronchoscopic examination was done; it disclosed evidence of bronchiectatic disease in the left lung. The right lung was found to be normal.

#### CASE 2

A woman, aged 25, came for examination, saying that when in apparent good health four years previously, she had been awakened in the night with hæmoptysis. The amount expectorated had been approximately 90 c.c. of fresh red blood. In the interval succeeding this occurrence hæmoptysis had occurred at various times, a provisional diagnosis of tuberculosis had been made, and the patient had spent many months in a sanitarium. In the four years of her illness, she had had a fever of from 99° to 100° at intervals, each exacerbation lasting many weeks.

On general examination it was found that she was a well developed and healthy looking young woman, without any evidence of organic disease. Examination of the lungs, both by methods of physical diagnosis and by roentgenogram, gave negative results. Tubercle bacilli were not found in the sputum in a large number of examinations. Bronchoscopic examination showed evidence of inflammation of the bronchi on both sides; the surfaces bled easily on the slightest trauma from the bronchoscope.

#### CASE 3

A woman, aged 39, had had pneumonia three years previous to examination. Her illness had lasted for 11 weeks and had been succeeded by a chronic intermittent cough with large amount of green, purulent sputum that was often blood-streaked. Her breath was particularly malodorous. During the three years' progress of the disease, she had had repeated pulmonary hæmorrhages, always preceded by chilliness, aching pain throughout the chest, and fever. During the intervals between acute attacks, the temperature was usually in the neighbourhood of 99°. Her general health was much improved after each attack of hæmoptysis.

General examination gave negative results; the leukocyte count was 7,500, and sputum repeatedly taken did not show evidence of containing tubercle bacilli. The roentgenogram revealed a small area representing a healed tuberculous apical lesion. Bronchoscopic examination revealed a typical bronchiectatic lesion in the left lower lobe.

*Comment on cases 1, 2 and 3.*—Most of the patients whose histories resemble these illustrated cases are diagnosed as having tuberculosis. Neither the diagnostic requirements of non-clinical or those of clinical tuberculosis are satisfied and a diagnosis of tuberculosis is untenable. But to give a negative diagnosis is unsatisfactory to the patient. He knows he has hæmorrhage from his lungs and he is alarmed. He knows treatment is urgently necessary regardless of the cause. Moreover, a negative opinion regarding tuberculosis falls short of the physician's duty to his patient. Methods of examination other than those ordinarily employed are necessary. The nose and nasopharynx, the sinuses and the larynx, the tongue, and the gums must be examined, and the trachea and bronchi explored.

When these measures are carried out and a

positive diagnosis is made, the treatment becomes obvious. Then one remembers the relative frequency of bronchiectasis, the wide variation in the pathological changes that accompany it, the etiological factors, the very great frequency of hæmoptysis in bronchiectasis and the marked variability in the amount and character of the bleeding and in the time of its occurrence. The amount of bleeding may be small or large; it may be from capillaries or branches of the pulmonary vessels; it may antedate by months any of the usual symptoms of bronchiectasis; or it may appear during any stage of its course. In my experience the relative incidence of hæmorrhage is greater in bronchiectasis than in any other disease of the lungs or bronchi.

In this type of case injection of lipiodol may outline the small areas of disease. In frank, advanced cases of bronchiectasis, a diagnosis is so simple as to require none but clinical methods of procedure. Bronchoscopic examination is required, however, to uncover the etiological element.

The third case in this group illustrates the combination of frank bronchiectasis with a closed tuberculous lesion which could not be held responsible for the hæmoptysis.

By means of bronchoscopic examination and injection of lipiodol, two cases were definitely proved to be unilateral and suitable for surgical interference; in one case secretions contained fusiform bacilli and spirilla and the patient has been well since receiving a series of injections of salvarsan. One of these patients had spent 14 months in a sanitarium for tuberculosis at great economic loss to herself and family. She is now a productive member of society.

#### CASE 4

A woman, aged 22, came to the clinic because of an illness of three years' duration. It had succeeded tonsillectomy and a submucous operation under general anaesthesia. The usual time limit of 14 days had elapsed between the operation and the onset of a cough with which thick yellow sputum, which at first was odourless, had been produced. The patient had had a small hæmorrhage four months later, and since that time had had a productive cough, with repeated instances of hæmoptysis. More recently she had had pronounced dyspnoea.

The examination disclosed evidence of a thickened pleura at the right base, with strongly positive characteristics of emphysema in both lungs. At the time of bronchoscopic examination, tissue was removed because the lesion seen was similar to a malignant growth. The tissue, however, was found to be inflammatory. The patient died from pulmonary oedema. At necropsy bronchiectasis was found in the right lower lobe; chronic inflammatory tissue filled both hilar areas and caused marked obstruction of both main bronchi.

## CASE 5

A woman, aged 35, came because of a history similar to that in the preceding case. Her illness had started within a few days following tonsillectomy done under general anaesthesia. A chronic cough with mucopurulent sputum had developed. She had become alarmed because of severe hæmoptysis associated with pain in the right side of the chest. The onset of symptoms followed tonsillectomy by three weeks. Before she came to the clinic an abscess cavity had been discovered and three operations had been attempted to drain it.

At the time of examination at the clinic, a sinus was seen in the posterior region of the chest; it was dilated to allow of better drainage. Bronchoscopic examinations were done and postural drainage was instituted along with the other usual treatments for this condition. The patient's general health was impaired to such an extent that further operative procedures could not be carried out. While at the clinic, she suffered excessively severe attacks of hæmoptysis, and on two occasions lost so much blood that she became almost exsanguinated. At one time hæmoptysis occurred daily for more than two weeks. Finally, she improved enough to allow of a right phrenic neurectomy being done. Following this operation, she rapidly improved and was discharged in very good general condition, with the reservation that if further symptoms developed, she might require further operative care.

*Comment on cases 4 and 5.*—Case 4 illustrates a typical aspiratory type of bronchiectasis which had passed through the stage of necrosis and abscess formation into the final stage of marked fibrosis and bronchiectasis. In similar cases, drainage may be improved by dilatation of the strictured bronchi. In this case, such a procedure was impossible, nor could the gross appearance be distinguished from that of malignant disease. The terminal œdema was due to the inspiratory difficulties resulting from a high degree of stenosis of both main bronchi.

In case 5 there were two noteworthy clinical facts: First, the lesion was in the upper lobe and had been drained by operative procedures done elsewhere on three successive occasions. It is hard to drain through a tube a multilocular abscess of bronchiectatic type. Secondly, the hæmorrhages during the patient's stay at the clinic were long continued, occurred on successive days for more than two weeks, and were truly exsanguinating in amount. It is always necessary to consider that a lesion of the upper lobe probably is tuberculous until definite evidence establishes another certain diagnosis, just as it is always necessary to consider a basal lesion as non-tuberculous until it can be positively diagnosed as tuberculous. Repeated examination of the sputum had been made for a period of six months and tubercle bacilli were never found; this is a significant fact. The surgical procedure was the only one that could be employed. If symptoms return, a further

and more extensive collapsing type of interference may be required.

## CASE 6

A woman, aged 31, came for examination and gave a history of having undergone dental extraction with local anaesthesia two years previously. She felt certain that during the operation she had aspirated some foreign material into a bronchus. However, she had had no serious sequelæ, her recovery had been without incident, and she had not attached further importance to the sensation that she had had at the time of the extraction. A year later, however, she had raised sputum that had come without great effort, but the cough and sputum had persisted throughout a period of four months; both then had disappeared temporarily. This period of improvement had been succeeded by lassitude, weakness, pleuritic pain, malaise and low-grade fever, never exceeding 100°, and blood-streaked, mucopurulent sputum, that was frequently malodorous.

Roentgenograms revealed a small lesion in the right interlobar space, but did not disclose evidence of disease in the upper lobes. Frequent repeated examinations of the sputum failed to reveal tubercle bacilli, but in spite of these negative data she was treated as if she were tuberculous and was sent away for the benefit of climatic change. The response was unsatisfactory and she finally reappeared for examination. On bronchoscopic examination, a small granuloma was seen on the mesial aspect of the right main bronchus, from which a piece of bone was removed. In the four years following the examination, her general health has been good, she has been able to continue with her work, but at various times throughout the year, particularly following rhinitis or coryza, she has a cough productive of mucopurulent sputum.

## CASE 7

A man, aged 38, came for examination because of cough that had developed two years previously and that had succeeded an illness thought to be influenzal pneumonia. During convalescence and continuously for the two years preceding examination he had expectorated large quantities of thick yellow sputum. Repeated examinations of the sputum were negative for tubercle bacilli. He perspired easily, the sputum was often streaked with blood, and he became markedly dyspnoic. Aside from the attack of influenzal pneumonia, he was unable to remember any incident of etiological significance.

The roentgenogram and general examination proved the existence of extensive bilateral bronchiectasis with typical clinical data and with characteristic sputum. Bronchoscopic examination was done, more to determine the degree of bronchiectasis on the two sides than for any other reason; the diagnosis was certain. In the course of this examination, a small amount of inflammatory reaction was seen on the left side and an extensive purulent secretion appeared on the right side. In the main bronchus of the right lower lobe there was an area of ulceration with necrosis simulating that of carcinoma. As a routine procedure, an attempt was made to remove tissue, but the forceps encountered a foreign body. This proved to be a piece of meat bone, 1 by 0.5 by 0.3 cm. Even after the removal of the bone, the patient was unable to remember any of the details connected with the aspiration of such a foreign body. Finally, he recalled that two months previous to his attack of pneumonia he had choked while eating meat soup.

## CASE 8

A young man came to the clinic stating that 15 years before he had aspirated a shingle nail and that following this he had coughed up small amounts of blood at various intervals. The amount of expectoration was influenced by the condition of his health and whether or not he had caught cold. A few days before



he came to the clinic he had had hæmoptysis of approximately 120 c.c. of blood, and had experienced pain in the chest after coughing.

On general examination, definite evidence of a lesion in the base of the lung was found, over which there were both diminished resonance and diminished breath sounds. Evidence of moisture could not be discovered. The roentgenogram showed the shadow of a shingle nail in the lung. On bronchoscopic examination, the shingle nail was removed on the second attempt, with the use of fluoroscopic guidance. It had been located in the right descending bronchus and removal was possible only after a very firm fibrous stricture had been dilated.

*Comment on cases 6, 7 and 8.*—No more perfect symptomatic picture of tuberculosis could be given than that in case 6. However, although symptoms were present, signs were wanting. An apical lesion was absent and tubercle bacilli were never found; also the patient had failed to respond to treatment that should have improved the health of a tuberculous person.

All three cases illustrate the well-known indeterminate length of time that a foreign body may remain in a bronchus. Preliminary symptoms may have completely passed from the memory. In case 7 the patient had not seen a significant relationship between an attack of strangulation and a subsequent severe illness simulating pneumonia and diagnosed as such.

These cases are of the type in which frank bronchiectasis is most definitely improved after removal of the offending foreign body and dilatation of the stenotic bronchus. Stenosis almost invariably accompanies the presence of these foreign bodies, and is located above the foreign body and in the bronchus that contains it.

#### CASE 9

A young man came to the clinic and reported that he had had hæmorrhages for two years previously. The cause of the disability was unknown to him. The hæmoptysis had started without warning and the amount of blood discharged had varied greatly. The greatest amount of blood discharged at one time was 1 litre. He had a slight cough with a moderate loss in weight, but his general health was essentially normal.

At the first visit, general examination and the roentgenogram both gave negative results, but the bronchoscopic examination revealed a lesion just below the bifurcation on the left posterior wall of the right main bronchus. The lesion was about 5 mm. in diameter. At bronchoscopy a small granuloma was removed. It had the appearance of a hilus gland ulcerating into the bronchus. The patient returned two years later reporting that his general health had been good. However, he had continued to expectorate blood every two months, and for the month previous to his return he had had almost continuous bleeding, with a large amount on only one occasion. There had been a definite increase in the amount of cough and in the severity of pain within the chest.

At this time general examination and roentgenograms again gave negative results but bronchoscopic examination disclosed a lesion near the point of removal of the granuloma; this point of removal was found to bleed easily.

*Comment on case 9.*—In any series of cases illustrating the cause of any symptom, there are always indeterminate types. This is the only granuloma of its kind that I have encountered. I know only of its presence and of the symptoms that it produced; I know nothing of the etiology and but little of the prognosis.

#### CASE 10

A middle-aged man appeared for examination because of fatigue, aching pains throughout the chest, and cough that came without warning, was paroxysmal in type, and productive of large amounts of blood and purulent material. These symptoms had persisted throughout a period of two years before examination, and in the later months hæmorrhages had occurred and calcareous granules had been expectorated. During the progress of the illness, his weight had dropped from 196 to 150 pounds and cough had been mainly non-productive. Nevertheless he had fever and illness that prevented him from carrying on his usual occupation. Previous to coming to the clinic he had coughed up a piece of chewed toothpick.

General examination disclosed definite evidence of bronchostenosis, flatness on percussion, absence of breath sounds, decreased resonance and fremitus, and diminished breath sounds over the right side of the chest. The leukocyte count was 18,400, and the roentgenogram revealed evidence of tuberculosis in the right upper lobe, with dense consolidation, indicative of abscess, in the right lower lobe. There was also roentgenological evidence of abscess in the right middle lobe. The sputum was examined repeatedly but tubercle bacilli were not found. Bronchoscopic examination disclosed a large amount of calcareous material in the posterior division of the bronchus leading to the right lower lobe. The lumen was obstructed by this deposit and the secretion was much more profuse after removal of the calculi. Further bronchoscopic treatments were carried out to rid the lung of its obstruction, with marked improvement in general health. The patient rapidly improved, and during the course of treatment he gained 23 pounds in weight.

*Comment on case 10.*—A group of cases of this sort has been observed at The Mayo Clinic. Usually they are found to represent the end result of chronic infection, but they may be due to the erosion of calcareous lymph-nodes. Unless the material is evacuated by coughing, it becomes a foreign body and stricture develops above and bronchiectasis below the point of obstruction. The response to bronchoscopic evacuation is similar to that which follows removal of other foreign bodies.

#### CASE 11

A young woman came for examination because she had coughed up blood during the previous four years and had been treated in a hospital for organic heart disease. Sixteen months previous to her first visit here, during a period of unusual physical activity, she had coughed up blood for two days. At this time, she had been sent to a sanitarium, where tubercle bacilli were found in the sputum.

When the patient was examined at the clinic her heart was enlarged and gave the classical signs of mitral stenosis. However, symptomatic and clinical



evidence of active disease was not found within the lungs, although the roentgenograms showed evidence of a lesion in the upper lobe of the left lung. At this time, it was thought that the hæmorrhage was due to the cardiac disease, because the hæmoptysis was contemporaneous with unusual physical activity. The patient returned fifteen months later, and, when she was examined, the lesion discoverable by roentgenogram could easily be demonstrated by general examination, and râles had appeared over the left apex. The condition of the heart was essentially the same as that noted at the first examination. The sputum contained tubercle bacilli. Bronchoscopic examination was not done because progressive tuberculous disease was definitely shown to be present.

*Comment on case 11.*—It is rare to find two pathological conditions so combined that either could produce hæmoptysis, one due to disease of the respiratory organs and the other to disease of the circulatory system. Such a condition produces great confusion and contributes to error. Unquestionably, the opinion at the first visit, that the bleeding was due to mitral disease, was incorrect. It seems probable now that the hæmorrhage may have been due to actively advancing pulmonary tuberculosis. The presence of râles is not conclusive evidence, however. Râles may occur in the left apex because of congestion caused by an enlarged, distended auricle.

#### CASE 12

A middle-aged man, who had been ill for three and a half years came to the clinic. During this time he had expectorated blood, and blood had welled up into the mouth without warning. He did not know of a cause for this hæmoptysis. The cough had been associated with the expectoration of blood, but had not been troublesome at any other time. However, he had suffered from general malaise and afternoon fever. He had been given a diagnosis of tuberculosis and had been treated in New Mexico, but he had failed to respond favourably. Two years previous to his first examination at the clinic, he had had pneumonia from which he had not recovered satisfactorily; the illness had lasted for a period of three months. Dyspnoea had appeared, had become the most distressing symptom of his disease, and had been associated with periodic attacks of an asthmatic character. Bronchoscopic examination had been attempted four years before his first visit to the clinic, but significant pathological change had not been discoverable.

At the time of the patient's first examination at the clinic positive evidence of bronchostenosis on the right side was discovered; well-marked stridor was present, but the larynx and upper respiratory passages were normal. Roentgenograms gave evidence only of thickening of the pleura. Repeated examinations of the sputum were negative for tubercle bacilli. On bronchoscopic examination a smooth tumour was seen. It arose from the right posterior wall of the bronchus at about the level of the bifurcation of the trachea and almost filled the trachea. The presence of the tumour accounted for the bronchostenosis that was demonstrated on general examination. Material was removed for examination, and was reported to be inflammatory in nature. The patient has returned for examination on many occasions within the last five years, and recently he was found to be in good health. He has been able to continue his work satisfactorily and comfortably. The tumour was removed by direct application of diathermy.

#### CASE 13

A young woman came to the clinic for examination, saying that 13 years previously she had had pneumonia and that she had noticed blood-streaked sputum since that illness. Moreover, she had had six severe spells of hæmorrhage that had occurred suddenly, that usually had been followed by a slight cough, and that had coincided in point of time with menstruation. Between these attacks she had been quite well except that on occasions she had attacks simulating asthma, associated with wheezing sounds within the chest. While she was menstruating, and following a hæmorrhage that occurred while she was visiting the clinic, the right lung became atelectatic, so that breath sounds could not be heard over it and the usual movements of the wall of the chest were absent.

The impression gained by examination was that air was not entering the right lung. The patient contracted an acute streptococcal sore throat while she was at home, between visits to the clinic. The right bronchus became stenosed at that time. Later, she coughed up large amounts of purulent sputum, after which she regained her health. A tumour was detected by general examination and its presence was confirmed by roentgenogram. It apparently was anteriorly placed and was closely associated with the main bronchus. The bronchoscopic examination revealed evidence only of profuse mucopurulent secretion. When the attempt was made to remove the tumour surgically, it was found to be an intrathoracic thyroid gland in which early malignant change had taken place.

*Comment on cases 12 and 13.*—Both of the conditions illustrated here are very rare. Case 12 illustrates the possibility of exact localization of a lesion. The larynx was found to be normal. The presence of stridor indicated a lesion high in the large bronchi, involving the trachea, and the finding of unilateral bronchostenosis indicated the side obstructed. Stridor and bronchostenosis appear after a considerable degree of obstruction has developed.

Case 13 is the only instance I have observed in which hæmoptysis could possibly be attributed to vicarious menstruation. It also is the only instance of an intrathoracic thyroid gland in which there was not any evidence of a connection between the intrathoracic portion and the normal thyroid gland.

#### CASE 14

A man, aged 29, came for examination because of pleuritic pain that had persisted throughout the previous year and was of unknown origin. At first it had been associated with a sensation of weight and depression within the chest. Later he had become free of symptoms and had remained apparently well for several months, only to have the trouble recur. He had recurring pains, hoarseness had developed and he had lost 22 pounds in weight.

On general examination, signs of bronchostenosis were very definite on the left side, with the usual decreased respiratory excursion and diminished breath sounds. The left vocal cord was found to be fixed in the cadaveric position. The roentgenogram of the chest was negative. Bronchoscopic examination revealed an ulcerative lesion on the mesial wall of the left main bronchus. A specimen removed was found to be adeno-

carcinoma, graded 4. The patient died 15 months following the onset of symptoms.

*Comment on case 14.*—There is no question that primary carcinoma of the bronchus is increasing. Since May, 1925, I have seen well over 100 cases. The diagnosis in these cases has been positively proved, if reliance can be placed on the evidence of malignancy in metastatic supraclavicular lymph-nodes, in tissue removed at bronchoscopic examination, and in evidence obtained at necropsy. The disease is essentially of a highly malignant type, and in my experience death has been inevitable.

Vinson, Moersch, and Kirklin, have summarized their opinion as follows:

Because of the inaccessibility of malignant lesions of the trachea and bronchus and because of the high degree of the malignancy, the end-results of treatment are necessarily disappointing. Most of the lesions are in one of the main bronchi and so near the bifurcation of the trachea that surgical removal of the growth would be extremely difficult, although Sauerbruch has removed it in five cases with two cures, one of five years, and one of three years after operation.

In early primary carcinoma of the bronchus, the roentgenogram shows a typical unilateral hilar density with infiltrating borders definitely centred at the hilum, and an atelectatic, or occasionally a bronchiectatic appearance, due to bronchostenosis.

#### DISCUSSION

In the first portion of this paper, I discussed hæmoptysis in relation to tuberculosis, because tuberculosis is so common a disease and the incidence of hæmorrhage is so high throughout its course. The latter part I have devoted to hæmoptysis in conditions other than tuberculosis. Objection may be raised that I have not been able to offer any new evidence or any suggestions that are not well known. It is proper to conclude with the words of Herriek who replies to his imaginary critic under similar circumstances. He said:

“‘Of course,’ pursued the objector, ‘I assumed that your practitioner or specialist was a man of experience and that he had common sense.’

“‘Alas!’ I replied, ‘some of us have knowledge but are not very wise; some of us see and know but do not think logically; some of us have had experience but have not learned; some of us are lacking in good judgment or what you call common sense. The trouble, you see, is that we are all human. So, old, plain truths have to be repeated, or presented in forms to fit the passing moment.’”

#### ACUTE OBSTRUCTION OF THE SMALL INTESTINE\*

By R. V. B. SHIER, M.B. (Tor.), F.A.C.S.,

*Surgeon to St. John's Hospital,*

*Toronto*

THE efforts of present day surgeons to improve results are directed along two lines: first, earlier diagnosis, and, secondly, the clinical application of methods to correct altered physiological and biochemical states. What the future holds in store we know not, but the work on intestinal obstruction carried out during the past few years amply justifies the hope that the results may be improved, not only in this, the greatest of all abdominal tragedies, but in other conditions as well.

In 1925 Souttar collected statistics representing 3,064 cases of acute obstruction of the intestine, occurring in seven London hospitals

from 1920 to 1924 inclusive, and found that the average mortality was 26.56 per cent. In the various pathological groups, so far as the small bowel is concerned, the mortality rate was as follows: idiopathic intussusception, 22 per cent; intussusception with tumour, 35 per cent; adhesions, 31 per cent; internal strangulation, 37 per cent; inguinal hernia, 15 per cent; femoral hernia, 20 per cent; umbilical hernia, 35 per cent; and gall stones, 50 per cent. The figures representing the mortality rate in obstruction of the small bowel work out to be approximately 30 per cent. However, this was in 1924 and much improvement in the hospital management of such cases has taken place since then. Various writers have reported better statistics, but so far none have reached the mark

\* Read before the Section of Surgery, Academy of Medicine, Toronto, January 21, 1930.

of 10 per cent laid down by Deaver as an attainable mortality.

My own series of some 29 cases is not large, and I should make an apology for presenting them were it not for the fact that I believe a great deal of good may be accomplished by a study of private cases and, of course, no series of private cases can be so very large, unless the period covered be several years.

In considering this problem of intestinal obstruction it is important to bear in mind that acute obstruction of the small and of the large bowel are clinically and pathologically separate conditions. It is my intention to deal only with acute small bowel obstruction, reviewing briefly the important experimental work of recent years.

It would appear that the substance responsible for the toxæmia has its origin in protein decomposition going on in the obstructed bowel, and that this toxæmia is very definitely present after thirty-six hours. Whipple and his co-workers believed that the toxin originated in the bowel wall, but in confirmation of the theory that the bowel content and not the bowel wall is the source Wanginstein and Chunn have demonstrated the toxic properties of bowel contents both above and below the site of obstruction. Badile has shown that the presence of bacteria is necessary in its production. In 1912 Hartwell and Hogue expressed the view that dehydration was an important factor in high intestinal obstruction. The work of Orr and Hayden on blood chemistry changes is well established. When these changes are demonstrable a definite alkalosis is present, as is indicated by an increase in the non-protein-nitrogen, particularly urea, a decrease in blood chlorides, and an increase in carbon dioxide combining power. Recently, Gatch, Trussler and Ayers, while corroborating the work of others, have in addition thrown light on the cause of death. Dividing the cases into, first, *strangulation without gangrene*, and, secondly, *strangulation with gangrene*, a classification first used by Hansler and Foster, they have shown that death in strangulation without gangrene is due to dehydration, loss of chlorides, and starvation, and may be very much delayed by the administration of fluids and chlorides. On the other hand, in cases of strangulation with gangrene, while the giving of fluids and chlorides may temporarily improve the general condition, yet death occurs from toxæmia. The difference

appears to be due to the fact that normal mucous membrane will not absorb enough toxin to cause death.

A general survey of this work gives us our present day conception of the results of intestinal obstruction, which might be expressed as follows. The symptoms produced by obstruction are the result of a toxin produced by protein decomposition and bacteria occurring in the bowel lumen; this toxin readily gains access to the general circulation through the damaged bowel wall; and the vomiting produced by obstruction is responsible for the dehydration and alteration in blood chemistry. It is on this conception that our present methods of treatment are based.

#### DIAGNOSIS

As physicians and surgeons we are interested in improving our results, and, while all this experimental work and theorizing makes interesting reading, yet from a diagnostic point of view it is of little help for some hours after the onset of obstruction and at a time when results should equal those of strangulated hernia. The key to a low mortality rate lies in early diagnosis. To wait for the clinical picture described in text-books, both ancient and modern, as one of pain, distension, fecal vomiting and constipation, is to court disaster, and one feels certain that those engaged in the teaching of the present day students have wisely laid them aside as symptoms presented by a patient *in extremis*. The early diagnostic points are: a history of having had an abdominal inflammation or operation, the latter being of most importance; a history of having, or having had, a hernia. However, one should not lose sight of the fact that a certain number of cases of intestinal obstruction occur without any history of inflammation, operation or existing hernia. There is only one subjective symptom and that symptom is pain. It is fairly sudden in onset. It is rhythmical and colicky in character, and is persistent until the case has progressed to a point where there is marked alteration in blood chemistry, resulting in a low level of blood chlorides, resulting in a cessation of peristalsis. At this juncture we might mention that the raising of these chlorides to their normal level will re-establish the pain. The patient either rolls about the bed with the pain or lies with the



knees flexed on the abdomen and refers to the mid zone of the abdomen as the site of his discomfort. The pain soon produces the subjective symptom of nausea and the objective sign of vomiting. The material vomited changes in character, as the hours go by, from gastric contents to bowel contents. A certain number of patients complain of persistent backache.

Examination of the abdomen should include an inspection and palpation of the hernial openings, for the pain of hernia may be entirely centred around the umbilicus. It is unreasonable to expect to demonstrate the symptom of visible peristalsis in a well nourished individual. Abdominal distension is a late symptom and only occurs after the obstruction has been in existence for several hours. From palpation we derive important information, for simply feeling the abdomen may bring on a wave of pain and, if such be the case, it is very suggestive. A second diagnostic point on which we are inclined to place a great deal of reliance is the early sign of intra-intestinal splashing in the obstructed area. We demonstrate this by a succession of quick movements with the flat of the hand, inclining the ear to the side of the abdomen while so doing. If in doubt as to whether or not the splashing sound is coming from fluid in the stomach, the passage of a stomach tube will settle the question in a few moments. As in all abdominal examinations, a rectal examination should not be neglected, for a gall-stone obstruction may be diagnosed by this examination and often the pelvis feels full of distended bowel. Another important point to bear in mind in cases of intestinal obstruction, even when the condition has advanced far past the safety point for operation, is the favourable facial appearance of the patient.

There are only two or three conditions which resemble intestinal obstruction. One is acute pancreatitis, which bears a striking resemblance to high intestinal obstruction, but, in this condition, the pain is more severe and constant, while there is cyanosis of the finger tips, and, early, a very high leucocyte count. There is usually exquisite tenderness over the pancreas. An ovarian cyst with a twisted pedicle should, as a rule, present little difficulty. A condition which may in certain cases confuse one is renal ecclie, resulting in distension of the abdomen, but

the radiation of pain and examination of the urine should assist in making the diagnosis.

#### TREATMENT

With the signs and symptoms of crampy pain and intra-intestinal splashing one should not hesitate to advise operation. If a mistake occurs after a conscientious effort has been made to make a correct diagnosis an apology is not in order, for we are dealing with a desperate condition which, if neglected, results unfavourably. Having made the diagnosis, the patient, if not in hospital, should be sent there and, when once admitted, blood should be taken for chemical studies, not for diagnostic purposes but rather as an index to treatment. When disturbance of the normal blood chemistry is present, of course it is diagnostic, but its absence means nothing early in the disease. It is true that the majority of the patients by the time they reach hospital have an alteration, but, whether this be the case or not, intravenous administration of saline and glucose should be commenced as soon as possible, either before, during, or after the operation. If dehydration and chloride deficiency are marked, as in the case of most patients who have been obstructed for over 36 hours, I believe that our results would be improved by delaying operation for a few hours longer so that this altered physiological state may be corrected. Chloride starvation can be quickly corrected by giving 600 c.c. of 6 per cent saline, and also by giving ammonium chloride per rectum in doses of 180 grains. The tendency in the past has been to rush the desperately sick patient to the operating room, but I believe that the better plan is to correct, or at least partially correct, the disturbed physiological state before dealing with the pathological condition. A great deal can be done in from four to six hours by this pre-operative treatment.

Before discussing operative procedure the question of the type of anæsthetic should be considered. The ideal anæsthetic is one which produces relaxation of the abdominal wall. It is difficult to procure this with gas and oxygen and local infiltration, and, if relaxation is not present, a great deal of harm may be done by the forcing out of the distended bowel, to say nothing of the difficulty of replacing it. Ether anæsthesia by inhalation, or spinal anæsthesia given by our present method, must be used. From the experience we have had with spinal



anæsthesia we believe that in obstructive cases it is the anæsthetic of choice.

Operations for obstruction, of course, vary in magnitude from the simple division of an obstructing band to resection of a gangrenous loop. The difficult question to decide is whether or not to drain the proximal loop of distended bowel; in other words, when to do an ileostomy. The question depends, first, on the extent of fluid distended bowel, and secondly, on the grade of toxæmia, and of course these both depend upon the duration of symptoms. If there are several feet of distended bowel full of fluid we have a definite indication for ileostomy. It is difficult to lay down hard and fast rules on this point, but one might be safe in saying that if more than three feet of small bowel are distended with toxic fluid, ileostomy is indicated, and the higher up the site of the obstruction, the more definite the indication. A small amount of distended fluid close to the ileocecal valve may drain readily into the cæum and may be soon evacuated per rectum. Nothing is to be gained by placing a tube in bowel distended with gas. The tube should be placed pointing upward and should be retained by the Witzel method, and when possible the tube should be brought out through the omentum. The patient is returned to bed and an intravenous injection of salt solution and glucose given by the continuous drop method for from 24 to 48 hours, according to indication. The ileostomy tube should remain in place from four to seven days. If too much fluid is being lost through the tube, it may be clamped off for two or three hours every four hours.

No paper on this subject would be complete without some consideration of obstruction immediately following laparotomy. I refer to post-operative ileus, so-called, to inflammatory obstruction, such as occurs after perforated appendix, and to those troublesome kinks of small bowel, which may or may not straighten out. Paralytic ileus is a term used so loosely by so many surgeons that the majority of us are confused as to the meaning of the term. Intestinal obstruction may be caused, first, by influences outside the bowel wall, such as bands and hernial openings, and, secondly, by conditions disturbing normal peristalsis, the result of altered innervation or inflammatory change.

The question of whether or not there is pain as a symptom depends on whether or not there is peristalsis. This conception leads to the classification of intestinal obstruction produced by conditions in the bowel wall itself into *dynamic* and *adynamic*. The outstanding example of dynamic intestinal obstruction is lead colic, and that of adynamic obstruction is the disturbance which takes place as the result of trauma or inflammatory change. To me it seems confusing to call the paralyzed bowel of local or general peritonitis paralytic ileus. It is rather a case of dysfunction due to changes associated with any inflammation, having many analogies throughout the body. The ileus of renal colic, epididymitis, etc., is the result of reflexly disturbed innervation and is the true paralytic ileus. Therefore, why not classify ileus into, first, *inflammatory*, and, secondly, *reflex*, when by so doing the rationale of treatment becomes apparent?

The cases of reflex ileus are treated with pituitrin, eserine, spinal anæsthesia, and sedatives, together with removal of the cause. The treatment of the cases of ileus which are the result of trauma or inflammatory changes commence at the time of operation. The hospitalization of cases for at least thirty-six hours before operation is important. During this period of time they receive rest and an abundance of fluids and we feel that we have gone a long way in promoting the early recovery of peristalsis after operation by this pre-operative treatment. In addition to this, the avoidance of trauma, particularly to the parietal peritoneum, is most important. Where one is dealing with an inflammatory obstruction following operation, we are firmly convinced of the value of ileostomy, if the condition does not readily yield to the external application of heat. This operation diverts the bowel contents for a week or ten days until peristalsis is re-established. Under no circumstance is it wise to meddle with the

#### SUMMARY OF INTESTINAL OBSTRUCTION

	Cases	Mortality percentage
Umbilical hernia .....	2	50
Inguinal hernia .....	5	0
Femoral hernia .....	2	0
Intraperitoneal band .....	15	20
Inflammatory obstruction .....	3	0
Post-operative gastro-enterostomy ...	2	0
Total cases .....	29	
Deaths—5 .....		17.24 per cent

original operative area and drugs in the form of cathartics, as well as repeated enemas, are definitely contraindicated.

The cases included in the summary have been handled, at least partially, in the manner outlined. However, they have also formed a basis

for study, and for the development of ideas of management. While the reported death rate is as low as, if not lower than, any yet reported, we feel that this can be improved by earlier diagnosis, better pre-operative and operative treatment, and careful selection of the anæsthetic.

## OBSTRUCTION OF THE COLON\*

BY GEO. H. STOBIE, M.B.,

*Belleville*

OBSTRUCTION of the large bowel differs in many respects from obstruction of the small bowel. The great majority of cases of large bowel obstruction are of a slowly progressive type due to malignancy, in striking contrast to the sudden complete type met with in the small bowel, where malignancy is so rare that it need not be considered.

Acute intestinal obstruction is a serious condition, threatening death if not relieved, but when caused by malignancy we not only have an immediately dangerous condition to deal with but the chronic malignant condition as well.

Cancer of the colon is almost as common as cancer in any other organ of the body. It is much more common in the left half of the colon, where it is of the slow growing scirrhus type with a greater tendency to produce obstruction, than in the right half, where it is of the fungating ulcerating type with a greater tendency to bleed and cause diarrhœa. Sixty per cent of cancers of the colon are not diagnosed until some degree of obstruction occurs; in other words, symptoms of obstruction are the tell-tales of 60 per cent of cancers of the colon. These symptoms take the form of increasing constipation, with occasional attacks of cramps and diarrhœa, which are usually relieved temporarily by an extra dose of laxative. They may be present for six to twelve or eighteen months before they are reported to a physician, because chronic constipation is so common as to be accepted almost as a normal state by a large percentage of people of the cancer age. Quite true, every patient complaining of chronic constipation cannot be put to the

trouble and expense of a thorough scientific examination of the colon. So the question arises what changes in bowel habit are necessary to justify putting a patient through it.

Any sudden demand for steadily increasing doses of laxatives, or a history of severe griping with an increased number of stools after the usual laxative, are very alarming symptoms; also, a tendency to bloat, with borborygmi and inability to get the usual feeling of relief after a bowel movement. These complaints, coupled with a loss of weight, anæmia, and a feeling of fatigue, should demand a thorough investigation of the colon in the following order. (1) Digital examination of the rectum. (2) If no mass is felt, then a stool examination should be done. (3) Whether or not a mass is felt, a thorough procto- and sigmoidoscopic examination should be made. (4) If a diagnosis cannot be established by these measures, then the colon should be examined by x-ray.

Five per cent of cancers of the large bowel produce sudden complete obstruction as the first symptom. Patients in this group are lucky to develop obstruction at a clearly operative stage.

Statistics show that, owing to the very advanced condition of these growths when they reach the surgeon, the percentage of cures by radical resection is very small. But statistics also show that cancer of the colon, with the exception of that of the rectum, remains localized longer, metastasizes later, and the operability and curability are both high. The percentage of five-year cures after resection is as high as in surgical removal of cancer in any other organ, if recognized and treated in its early stages. These statistics should dispel the old general belief that cancer of the colon is a hopeless con-

\* Paper read at the annual meeting of the Ontario Medical Association, Hamilton, May, 1929.

dition, and should serve as a stimulus to earlier recognition.

In view of the different principles of treatment employed for small and large bowel obstruction, it is very important to be able to differentiate the one from the other when confronted with an acute case, because ancillary methods, such as x-ray, stool examination, etc., which are of great value in sub-acute and chronic obstruction, cannot be employed in acute obstruction.

*Vomiting* is a comparatively late symptom in large bowel obstruction. The farther the obstruction from the ileo-caecal valve, the later it makes its appearance. It is not until a sufficient back pressure is exerted through this valve on the small bowel that it appears. Vomiting may not occur for several days, even in the presence of complete colonic obstruction.

*Distention.*—This, another fairly early sign in obstruction of the small bowel, is not so marked in colonic obstruction and is usually confined to the flanks. Distention of the colon first appears in the caecum, because this is the most distensible portion, and should always be felt for when examining a patient in whom obstruction of the colon is suspected. If the caecum balloons up under the palpating hand, this is a very pathognomonic sign of obstruction in the colon.

Quite contrary to what applies in the case of obstruction of the small bowel, obstruction of the colon is not an indication for immediate laparotomy, because these patients are exhausted surgical risks. Neither the general condition of the patient nor the local condition of the bowel will permit any extensive surgical procedure. The growth cannot be removed from the colon by resection and anastomosis in the presence of any obstruction; therefore, the safe management becomes a procedure of several stages. If the obstruction is not complete it may be relieved by putting the patient at rest, with morphine, colonic irrigation, and restriction of the diet, until the accumulated contents proximal to the growth have been removed, and the patient's general condition has been improved by suitable nourishment, transfusions, etc. Then a one-stage operation is possible. But if the obstruction cannot be relieved by irrigations, then it must be relieved through an outlet proximal to the growth. Most obstructing growths occur in the left half of the colon and the ideal method of

relief is by caecostomy. This can be done with little risk under local anaesthesia. A clean left abdomen results, through which the obstructing growth can be removed later, but still retaining the caecostomy until anastomosis is secure. Then the opening may be closed.

The following two histories illustrate, first, the slow progressive type of colonic obstruction due to malignancy, and second, the acute obstruction type due to malignancy.

#### CASE 1

Mrs. V. B., aged 75, was admitted on February 23, 1923. She was a small, frail, anemic, emaciated woman, complaining of severe cramps, abdominal pains and inability to get the bowels to move, gradually increasing in severity for three days, with slight nausea, but no vomiting. She had been in her usual health until about one year previous, then began to lose weight, lost her appetite, and, although she had been more or less constipated before, she now was becoming progressively worse and had had numerous attacks of abdominal cramps accompanied by borborygmi; she had lost twenty-six pounds in weight, felt bloated, and had a dragging sensation through the abdomen.

On examination, the abdomen was moderately distended; the caecum, ascending and transverse colon could be easily palpated up to a hard round, movable lump just below the left costal margin; beyond that the colon could not be felt. The blood showed haemoglobin, 40 per cent; red blood cells, 3,400,000. She was suffering a great deal and a caecostomy was done under local anaesthesia, to relieve the obstruction, in preparation for a later resection. The bowel was irrigated twice daily. She was transfused twice within the next two weeks. X-ray, following a barium enema, confirmed a complete obstruction coincident with the mass under the left costal margin, but she never got in a condition to stand resection. She lived two and one-half years and died of typical pernicious anaemia.

#### CASE 2

F. C., a male, aged 41, was admitted on December 27, 1928, a strong, muscular, well nourished, florid complexioned, healthy looking farmer. He complained of severe paroxysms of abdominal pain of three days' duration, and of inability to get bowels to move; he was nauseated and had vomited twice within the previous twelve hours before admission. The history obtained from the patient and family stated that he had always been well, and worked hard every day, the bowels moved every day without laxatives; no loss of weight; appetite had been excellent. The only previous illness was a slight attack of cramps, one month previously, that lasted a few hours and was relieved by a dose of salts.

The temperature was 99°; pulse, 110. The abdomen was very little distended. He seemed hypersensitive all over; no mass felt; he was very nervous and would not co-operate in the examination. A diagnosis of obstruction was made but localization was not attempted. The abdomen was opened through the right rectus under ether anaesthesia. The colon was found to be moderately distended down to the sigmoid loop, where a small hard signet-ring type of carcinoma produced complete obstruction. The loop was very mobile, so much so that the loop with the growth was delivered and inspected through the right rectus incision. Only one small gland was found and that was in the mesentery directly under the growth.

I may be open to criticism for not having located the site and type of obstruction in this case before the operation, and I suppose relief of the obstruction by



blind caecostomy under local anaesthesia would have been the ideal procedure. But the fact remains; the abdomen is open through a right rectus incision and we have a cancer in the sigmoid. What is the best method of relieving the obstruction and subsequently removing the growth? I closed the right rectus incision, and withdrew the growth from the abdomen through a split muscle incision in the left lower abdomen; split the mesentery and sewed the two limbs of protruding bowel together; closed the abdomen tightly about the bowel; inserted a catheter into the proximal loop through a trochar and canula to relieve gaseous tension. The growth was removed on the seventh day and the continuity was established by the Mikulicz method. The right rectus incision healed without infection and the left abdominal wound was closed firmly in five weeks, with the bowels moving normally.

The Mikulicz three-stage method is not an operation of choice, except in the case of a few very movable growths in the sigmoid, descending and transverse colon, where there is very little glandular involvement. This was an ideal type of case and I think was the safest way of handling the growth, and no method could have given better results. C. H. Mayo, in an article (published in *Surg., Gyn. & Obs.*, July, 1924), said, "Descriptions of the three-stage Mikulicz method of removing cancer of the sigmoid and descending colon are singularly lacking in the standard text-books of surgery, yet few operations for cancer of the large intestine are simpler, have a lower mortality rate, or offer so good a chance of complete cure."

Impacted faeces is mentioned by all standard text-books as a cause of colonic obstruction occurring in old debilitated bedridden subjects who neglect their bowels. A mass can usually be felt in the abdomen. After the administration of several enemata, it can be made to disappear. But impaction may occur in people who lead an active life and who try to regulate their bowels, the following case is an example.

#### CASE 3

D. H., a male, aged 54, was admitted July 3, 1926. He was a farmer, in his usual good health until twelve hours before admission, although he had been obstinately constipated all his life, and had taken laxatives daily for years. He was suffering severe cramping pains at intervals of from one to four hours, had taken large doses of laxatives and several enemata, and had had several small movements with flatus, but did not feel relieved; slightly nauseated but had not vomited. There was nothing to note in his previous history except an operation one year previous for sub-acute appendicitis; good recovery. He was admitted for observation and x-ray. He was quite comfortable for about four hours then had such a terrific spasm that he begged to be operated on immediately.

His temperature and pulse were but little affected. The abdomen was moderately distended. No mass could be felt. He was slightly sensitive all over, but no true rigidity was present. It was slightly more sensitive in the region of the old scar. The pre-operative diagnosis

was incomplete small bowel obstruction due to adhesions from previous laparotomy. The scar was excised and the abdomen opened. One small adhesion was found adherent to the under surface of the old scar but was causing no trouble. The colon was found markedly dilated down to the recto-sigmoid juncture and here a hard round ball of faeces, the size of a billiard-ball, was found causing the obstruction in the manner of a ball valve. This was broken up by manipulation through the bowel wall. No organic stricture could be felt. The abdomen was closed and he made a good recovery, and has been very much freer from constipation ever since.

Obstruction occurs as the result of inflammatory thickening of the colon, originating either as a peri-diverticulitis or as direct extension to the colon from intra-abdominal or intrapelvic inflammation. This condition may simulate malignancy very closely; in fact, an inflammatory mass, the result of diverticulitis, may be mistaken for malignancy even after the abdomen is opened.

X-ray examination is of inestimable value in differentiating the two conditions. Diverticulitis is usually confined to the sigmoid; it occurs in younger subjects than does malignancy. A history of several attacks of so-called left sided appendicitis is not infrequent, and rarely do blood and mucus appear in the stools with diverticulitis until very late.

The following history illustrates the type of case, although a very mild degree of this condition.

#### CASE 4

Mrs. B. F., aged 63, was admitted on March 14, 1927. She was a very obese woman, complaining of attacks of cramps and bloating with increasing constipation for the past year, and a dull aching pain in the left lower abdomen. There was nothing in her past history to note except she had had within the past few years several attacks of quite severe pain in the left lower abdomen, at one time sufficient to confine her to bed for several days.

Physical examination did not reveal anything except tenderness in the left lower quadrant. X-ray revealed a stricture near the recto-sigmoid juncture; no blood nor mucus was found in the stool. On exploration, an acute gangrenous appendix epiploica was found and removed just above the area of stricture. The sigmoid was found firmly involved in a mass of adhesions attached to the left wall of the pelvis just below the brim. These were separated and the colon freed, but it was kinked. To overcome this a rectal tube was passed through this area to prevent it from becoming attached at a deforming angle again. This remained in for seven days. She made a good recovery and has been free from trouble since. This, I believe, was a case of pericolicitis, originating in a diverticulum or possibly a former gangrenous appendix epiploica, which caused these adhesions.

The following case illustrates inflammatory obstruction, the result of extra-colonic inflammatory extension.



## CASE 5

Mrs. J. I., aged 40, was admitted on June 8, 1928. She was a sick, sallow complexioned woman, complaining of: bloody diarrhoea; severe cramps and bloating; dull aching pain across the lower abdomen, sacrum and down the thighs; loss of 42 lbs. weight in eighteen months; 21 lbs. in the past two months.

She was the mother of four healthy children and had been well until about eighteen months previous to admission. She was confined to bed for about ten days with an illness consisting of lower abdominal pain, nausea, and vomiting. She lived in the isolated north and did not have medical attention. Since then she had never been well; had marked constipation, alternating with attacks of diarrhoea, severe abdominal cramps, and distention. These symptoms had become much worse within the past two months and she had had a great deal of bleeding from the rectum with frequent foul smelling stools.

The abdomen was quite distended. A bilateral, lower abdominal tumour was felt, which was very tender, and seemed to rise from the pelvis. Bimanual examination found the uterus firmly fixed and very tender.

Rectal examination disclosed almost complete stenosis about six inches from the anus, with a bleeding fixed mucous membrane.

The abdomen was opened through a mid-line, suprapubic incision, and the pelvis was found to be filled with double tubo-ovarian abscesses which were removed. The appendix was sub-acutely inflamed and firmly attached between a retroverted uterus and the rectum. The pelvic colon and upper rectum were hard, thickened and stenosed, but did not manifest malignancy. A rectal tube was passed through the stricture with difficulty into a dilated sigmoid above, and was allowed to remain there for nine days. The uterus was elevated; the abdomen was closed with drainage. She made a good recovery and is now in good health and free from any complaint.

This is a case, in which, from the history and physical findings one was justified in having a very strong suspicion of malignancy, but the match that kindled this slow smouldering fire undoubtedly was the appendix.

## TRAUMATIC NEUROSIS\*

By C. H. BASTIN, M.D.,

*Vancouver.*

THIS is a review of the more outstanding features of a condition which has come to be known as "traumatic neurosis". The term is unfortunate, chiefly because trauma, although associated with the condition, is not the essential cause. The name, however, enjoys such widespread use that it is likely to persist. Many of the cases present symptoms that are purely hysterical, while in others neurasthenic symptoms predominate.

Fetterman<sup>1</sup> describes a neurosis as a disheartened reaction to a physical or social reverse. Riley<sup>2</sup> states that the object of all functional disorders is to get something for the patient which he desires and is unable to obtain by any other means. It is a defense mechanism, and to the patient the disease is always an asset. Bonhoeffer<sup>3</sup> declares that traumatic hysteria is not a disease but a psychological reaction which occurs only with certain wishes, and disappears when they are given up. It cannot be emphasized too much in speaking of wishes and desires in this connection that they are unconscious activities, that is, they have not risen, as such, into the realm of conscious thought. Space does not permit of elaboration of this theme.

Suffice it to say that human conduct is often materially influenced by desires, hopes, or fears of which we are not consciously aware.

The condition must not be confused with malingering, which is a conscious and purposeful attempt to deceive. The hysteric is fully convinced in his own mind of the genuineness of his complaint; he has first convinced himself, before he attempts to convince others. There is a moral distinction. To quote Fetterman again, "In the susceptible individual the neurosis is born in fright, is fed by fear, and then as it grows it develops as its aim the getting for the patient of sympathy and shekels." Again, I would point out that this is an unconscious process.

Neurotic symptoms are probably as old as the human race, and outbreaks occurred in epidemics in mediæval times. There is no question, however, that, with the devising of various schemes of insurance and compensation, the condition has become more common. In 1895 accident insurance came into effect on the Austrian railways.<sup>4</sup> In the ten years preceding no case of purely nervous symptoms following a railway accident was recorded, while in the ten years subsequent to 1895 there were 46 such cases.

Writing in 1888, Strümpell<sup>5</sup> recognized the

\* Read at a meeting of the Vancouver Medical Association on January 7, 1930.

psychical nature of cases of railway spine, but attempted to distinguish between what he called *general* traumatic neurosis, such as railway spine, and *local* traumatic neurosis. He talks vaguely of subtle changes in the tissues of the central nervous system (as indeed some do to-day) in the former group, but classes the local cases as hysterical. The symptoms he describes are strikingly similar to those we hear recited to-day—anaesthesia and hyperaesthesia in various combinations, muscular weakness, tremors, headaches, sleeplessness, and so on.

In approaching the question of etiology, it is useful to bear in mind the four inter-reacting types described by Fetterman. (1) Those who inherit poor nervous stock; (2) those who are the subjects of poor early training, and so have not learned to face reverses; (3) those who suffer from chronic ill-health, successive illnesses having sapped their reserve; (4) failures who are the subjects of poor inheritance and faulty training.

In individuals such as these an injury provides a temporary escape from the necessity of facing the work-a-day world. The sufferer at once becomes the centre of sympathy and tender solicitude, in the midst of which past failures and present inadequacy are comfortably forgotten. The malady has become a refuge from the "whips and scorns of time"; it is an asset, and as such will be fondly cherished.

The type of injury has little bearing on the development of the condition, and comparatively trivial injuries are sometimes followed by marked hysterical symptoms. Injuries of the head and spine are commonly viewed with awe by both the laity and the profession, so that doubts are engendered as to ultimate recovery, and hence these injuries are a fruitful field for the development of functional disorders.

The disability is born in fright and is fed by fear, fear as to the future, as to recovery, permanent disablement and so forth. The injudicious remarks of friends; the so-called guarded prognosis; the experience-meeting of the neighbours, vying with each other in recalling the most unfortunate cases they have heard of, all tend to undermine such fortitude as the patient possesses. In the same category, I would place the practice of exhibiting x-ray films to a patient; he seldom understands them; his curiosity may be gratified, but he may gain an entirely erroneous idea as to their meaning. Another re-

prehensible practice is the remark, so often heard, that it was a narrow escape, "Another inch and you wouldn't be here". It suggests a doubt that some serious injury has occurred which the doctor has not found. Again, there is no doubt that many symptoms are suggested to susceptible individuals by the use of leading questions about such things as sleeplessness, headache, and tremors. In a court of law, leading questions are permissible only during cross-examination, and a leading question improperly asked galvanizes the opposing counsel into immediate protest. It is sometimes a pity that we have not some similar censor at the bedside with us, as a train of symptoms may be set in motion by a well-intentioned, but unnecessary, question. If the symptoms sought after are present, most conscious patients may be trusted to communicate them.

Immediately after an injury, a person is shaken, easily influenced by chance remarks, is what is known as suggestible. Suggestions as to sure and prompt recovery will be as readily accepted as those of an opposite character. Our duty here is clear.

Sir Farquhar Buzzard<sup>6</sup> lays stress upon another factor in the production of neurosis following injury, the factor of responsibility. As an example, a young man ruptured some fibres of his supinator longus while playing badminton, a "tennis elbow". He was advised to give up his badminton for a few weeks, but was with difficulty induced to forego the game on the two succeeding Saturdays. In a month all symptoms were gone. Compare this with a warehouseman who suffered the same disability while handling a packing-case. Work was out of the question for six weeks, and the pain persisted for three months, long after local tenderness and atrophy were gone. In the first case, the responsibility, if there was any, rested on the patient's shoulders; in the second case, according to the patient, the boxes were too heavy, there were not enough men to help, the employer was to blame. This factor of responsibility awakens a sense of injustice. The patient has been made a victim, there is a wrong to be righted, someone will have to pay, and so is engendered a sense of covetousness, a desire for monetary award at the expense of the responsible party, be it employer, street railway company, motorist, or what you will. The convalescence from injuries sustained in amateur athletics is notori-

ously more rapid than in industrial cases of similar severity.

Llewellys Barker<sup>7</sup> regards a poor inheritance as the essential predisposing factor. He divides the human race into two broad classes, the "philopone" or lovers of work, diligent, industrious, always finding some task to do, and the "aphilopone", who work only from necessity, and never from love of it. He believes that functional disorders following trauma occur only in individuals of the latter class. To the normal reaction to injury, viz., fright, is added an unconscious pathological wish, that of obtaining financial gain without work.

The symptoms in general represent a replacement of hope by fear, of confidence by anxiety. It is to be noted that these are emotional changes. The varying complaints are legion—aches and pains referred to the site of injury or elsewhere, often not relieved by rest, as is somatic pain; sleeplessness; palpitations; tremors; sweating. When the condition is well-developed the victim has lost all objective interest in the world about him; his mind is centred on himself.

Sir John Collie<sup>8</sup> makes use of an apt simile. We may be seated in a public conveyance and be aware of the fact that a stranger has entered without glancing directly at him, or we may, on the other hand, scrutinize him closely, noting his appearance, dress, etc. The neurotic scrutinizes very closely every one of his bodily sensations, so that flatus passing along the bowel becomes severe abdominal pain, the beating of the temporal artery against the pillow becomes a throbbing of his head, and so on. If the neurotic does not, like the malingerer, feign symptoms that are non-existent, he is certainly very prone to exaggerate those he has.

Pain, which in some form is one of the commonest complaints, should be investigated carefully, as to its character, distribution, and relation to demonstrable organic changes. Acute pain is accompanied by dilatation of the pupils, and quickening of the pulse rate. Pain due to organic changes, referred along the course of a mixed nerve, we should expect to find accompanied by evidence of motor involvement as well. Similarly, referred pain due to inflammation in a joint is accompanied by spasm of contiguous muscles, and ultimately by corresponding muscular atrophy. Where pain is referred to the

viscera, examination should be made as to disturbance of function of the organs indicated.

A careful history, a painstaking examination, taking nothing for granted which cannot be demonstrated, the exposure of discrepancies and inconsistencies, a careful search for, and rigid exclusion of, any possible organic basis for the complaints, bring us to the diagnosis.

Sir Farquhar Buzzard<sup>6</sup> gives an interesting instance from the English courts, in which the plaintiff's lawyers argued that their client was suffering from neurasthenia, and so was entitled to compensation. The employers, on the other hand, contended that the man's inability to work was caused by his brooding over the effects of his accident, and that he was suffering from weakness of will and a fixed but erroneous idea that he was a chronic invalid. As Sir Farquhar remarks, the employer gives a crude but sufficiently descriptive definition of neurasthenia, and the two contentions mean one and the same thing.

#### CASE 1

A man of 60 years was one of several passengers in an elevator when it fell about six feet. No one was seriously injured. The patient himself was knocked slightly against the side of the car. He immediately accused the operator of carelessness, and secured the names of several of his fellow passengers. They expressed their sympathy and assisted him to reach the street. Being out of work, he remained at home for four days and then called a doctor. He complained of vague pains, headache, dizziness, loss of appetite, and stiffness in his back. Physical examination was negative, and he was assured that no serious effects were to be expected. The complaints, however, persisted, and some three months later he secured damages of \$3,000. He immediately left for California, holidayed for three months, and has had no return of his symptoms.

#### CASE 2

A woman of 46 years, married, with three children, was in her home when a rock from some blasting operations crashed into the room, without however striking anyone. She was not injured physically, but immediately fell to the floor and for some time could not speak or move. A multiple arthritis, from which she had suffered previously, became aggravated, and when seen five months later involved both feet, both knees, the right shoulder, and right hand. In addition, however, the right forearm was held painfully pronated, the fingers hyperextended, and the nails had been permitted to grow till they projected an inch beyond the finger tips. The history showed that from a life of comfortable means in England, the patient had come to the drudgery, hardships, and poverty of life on a stump-ranch in British Columbia. The hysterical condition in the right forearm and hand improved under psychotherapy; a wealthy relative furnished means for a trip, and the arthritis rapidly cleared up.

#### CASE 3

A single man of 30 years was thrown into the air and fell heavily across a log, being severely bruised about the trunk and rendered unconscious. He was admitted to hospital, and as the bruises cleared up, the pain in



his back increased. Later, an x-ray showed fractures of several transverse processes in the lumbar spine. Several plaster jackets were applied, but with little relief of the pain in his back. In addition he became depressed, sleepless, tremulous, and claimed that he was too weak to walk. Eventually, after approximately three years, he was given an award for a permanent disability. He dropped from sight, till three years later, when he sustained a fracture of his leg while working as a logger. Enquiry showed that within a few months of receiving his award he had resumed his former strenuous occupation.

#### CASE 4

A married man, of 28 years, was struck on the right temple by an air-rivetting tool, projected by a "gun." He sustained a severe contusion of the temporal region, but was not rendered unconscious. He left work at once, travelled several miles by street car to see a medical man, and received appropriate treatment for the contusion, but as the effects of the contusion passed off, he developed severe headaches, became sleepless, complained of dizziness, a feeling of floating and palpitations. X-ray examination of the skull failed to show any evidence of fracture; the spinal fluid was normal; and the only objective evidence of injury was some alteration of the vestibular reactions. In this connection, during the discussion of a somewhat similar case, at a meeting in New York, Dr. T. K. Davis expressed the opinion that labyrinthine tests are by no means on a scientific footing, and that too much stress should not be attached to such findings in the absence of other confirmatory evidence. However, the present case received an award, and while recovery is not yet complete, there is some improvement, and eventual recovery seems assured.

The man who was riding in the elevator might be suspected of being a malingerer, but the symptoms were purely neurotic. In case 2 the motive underlying the hysteria was undoubtedly that of escaping from a domestic situation which had become intolerable. At the same time it was an unconscious mechanism which availed itself of a near accident. It is interesting to note that organic disease became aggravated, and that the functional symptoms became entwined around the somatic disease. This is an event which occurs very commonly in industrial cases, as in case 3. The differentiation of what is due to actual injury and what is functional is at times very difficult, and there is no doubt that in many cases the original injury acquires a considerable added functional element. Case 4 illustrates this very well.

#### CASE 5

A man, 46 years, married, while carrying a sack of flour, stated to weigh 200 pounds, caught his foot in some loose lumber, with the result that the sack was precipitated forward over his shoulder. He complained of a tearing pain in the back of the right shoulder, and of a strain of the foot (which one was not specified). Presumably, the strain of the foot was not serious, as it was not again alluded to. The condition was regarded as a tearing of some of the fibres of the trapezius muscle in the vicinity of the scapula. Pain persisted in the injured region, and eventually an x-ray was obtained, without, however, revealing any bony changes. Sixteen

months later the symptoms were as pronounced as ever, and examination showed nothing to account for the complaints, with the exception that there was possibly some arthritis in the shoulder joint. The pain, however, was not referred to the joint so much as to the posterior border of the scapula. It is interesting to read some of the opinions expressed by this man. He attributed his accident to his employer, because some loose and broken boards had been left about: "The world owed him and his family sufficient to eat, there was plenty of food in the world for everybody, and he considered that he and his family were entitled to their share." There is an element of truth in his contention, and most of us share his views, but we are prepared to do something to acquire the good things of the world, while he expected to have them brought to him. His attitude is that of the "aphilopone" spoken of by Llewellys Barker. Eventually a settlement was arranged, but when last seen, some three years after the accident, there was little if any improvement in the subjective symptoms, though physical examination was negative. Unfortunately, no details of this man's family or personal history are available. It is possible that they might reveal information of interest.

Before dealing with treatment, I should like to say a word about prevention. This has been alluded to already, but I believe we can hope to accomplish more in the direction of prevention than we can of clearing up the symptoms after they have developed. I would again stress the fact that recently injured persons are very easily influenced by suggestion, and will accept suggestions as to recovery as readily as the reverse. The first essential is a careful examination of the injuries. An opinion expressed after such an examination carries conviction. Having completed a systematic examination with the patient stripped and in a good light, we should be in possession of sufficient data to formulate at least a working diagnosis, and a probable prognosis. To these the patient is entitled, and they should be communicated in simple language. The late Dr. Clarence Starr, of Toronto, was accustomed to make a note in his records of the date upon which he expected recovery to be complete. This was communicated to the patient, and as recovery progressed, was alluded to from time to time in a matter-of-fact way. This was suggestion, properly applied, and it was eminently successful.

In approaching these patients we should remember that to them their malady is very real. Attempts to dislodge the symptoms by ridicule or abuse are uniformly unsuccessful; indeed they serve only to alienate the patient, arouse his antagonism, and eventually fix the symptoms more firmly in control than ever. To tell him that his troubles are imaginary, and that the best thing he can do is to forget them, is only to show him that you do not understand his case.



As long ago as 1894 Ricolins<sup>9</sup> spoke of the gold treatment, in which it was found that bank notes were quite as efficient in relieving the symptoms as the metal itself. Settlement of the claim in court or by a compensation board takes the matter out of our hands. Strange to say, it is not essential that the settlement be one favourable to the claimant, provided that it definitely debars any possibility of having the matter further considered. Naegeli<sup>9</sup> reports 138 cases, which showed no impairment of earning power after settlement. Boon<sup>9</sup> found 95 per cent of his cases fully recovered, and Dercum<sup>9</sup> cites 447 cases, not one of which reported for further treatment following settlement. The last mentioned states that he has never been able to effect a cure while a settlement was pending, and speaks of the "indecent haste" with which some cases recovered after a satisfactory settlement in court. Schaller<sup>9</sup> reports similar results in California, but would make an exception in the case of psychopaths, in whom recovery will be slow, if it occurs at all.

The recent literature from Germany, where state insurance was born, would indicate a tendency to regard traumatic neurosis as non-compensable. Stier<sup>10</sup> reports 50 telephone operators receiving pension for neurosis due to alleged injuries by telephone current. Every pension was discontinued, and 47 of the cases submitted without protest.

When we come to treatment we should bear in mind our definition and the etiological factors which are at the root of the trouble. I need hardly say that to accuse the patient bluntly of cupidity will only provoke from him an indignant denial. At the same time, we should not lose sight of the fact that if he abandons his unconscious wish his condition will immediately improve, which, after all, being his medical, not his legal advisers, is our main interest. I conceive it to be no part of the physician's duty to encourage the neurotic in his dreams of avarice.

The treatment naturally resolves itself into psychotherapy. As a first step, it is essential to gain the patient's confidence, and unless this can be done it is useless to hope for co-operation on his part. In minor cases a simple and frank explanation may serve to dispel the symptoms, as the following case will illustrate.

#### CASE 6

A young man of 19 years, while making some electrical connections, received an electric shock in his right hand. He thought little of it at the time and continued working. Three weeks later he reported, complaining of numbness of his right hand and forearm. Examination showed no actual loss of tactile or protopathic sensation in the part, and there was no muscular atrophy. Enquiry showed that the boy was an orphan, who had been raised by a maiden aunt, who presumably lavished on him all and more than a mother's care. She had been massaging the hand and forearm every night since the accident, and this no doubt had suggested the existence of a disability. The assurance that no ill-effects had resulted from the electric shock was all that was necessary to dispel what was an incipient neurosis.

In more serious grades of the condition the aid of a confrère, experienced in dealing with functional maladies, is desirable, at the same time that somatic conditions are receiving appropriate care.

#### CONCLUSIONS

1. Traumatic neurosis is an emotional state, not dependent upon any physical disturbance but upon a number of psychological factors, viz., poor inheritance, fright, anxiety, suggestion, and culminating in an unconscious wish for unearned financial gain.
2. The patient is not a malingerer.
3. We can accomplish most by preventing the development of the condition.
4. With settlement of the claim the symptoms tend to disappear.

I wish to express my indebtedness to Drs. W. A. Dobson, K. D. Pantou, G. E. Drew, J. S. Conklin and D. A. Tompsett for permission to make use of the cases quoted above, and to our Librarian, Miss Firmin, for valuable assistance in reviewing the literature.

#### REFERENCES

1. FETTERMAN, J., *J. Am. M. Ass.* **91**: 319, Aug. 4, 1928.
2. RILEY, H. A., *J. Am. M. Ass.* **90**: 429, Feb. 11, 1928.
3. BONHOEFFER, K., *Deut. med. Wchnschr.* **52**: 179, Jan. 29, 1926.
4. SCHALLER, W. F., *J. Am. M. Ass.* **71**: 338, Aug. 3, 1918.
5. STRÜMPFEL, A., *Proc. New Sydenham Soc.* **148**: 301, 1894.
6. BUZZARD, SIR E. F., *Lancet* **2**: 1285, Dec. 15, 1923.
7. BARKER, L. F., *Nation's Health* **9**: 12, Sept. 15, 1927.
8. COLLIE, SIR J., *Practitioner* **106**: 318, May, 1921.
9. Quoted by CATTON, J., *Med. Clin. N. Am.* **6**: 1551, May, 1923.
10. STIER, E., *Deut. med. Wchnschr.* **51**: 2062, Dec. 11, 1925. (*Abs. J. Am. M. Ass.* **90**: Jan. 30, 1926.)
11. OSNATO, M., AND GILIBERTI, V., *Arch. Neur. & Psych.* **18**: 181, 1927.

## ÉTUDES DE QUELQUES CAS DE PSYCHOSES TRAUMATIQUES\*

PAR LE DR. G. DESROCHERS

Québec

LES troubles mentaux survenant à la suite des traumatismes crâniens ont pendant longtemps été confondus dans une même description, sans qu'on put dégager exactement les symptômes propres aux lésions du système nerveux, des désordres purement fonctionnels, décrits sous les noms de névroses ou psychonévroses traumatiques, et relevant de facteurs psychogènes.

Il a fallu l'expérience de la guerre, qui nous montra un si grand nombre de syndromes commotionnels sans blessures extérieures, pour nous apprendre à distinguer, dans la pathogénie de ces troubles mentaux, entre ce qui appartient au traumatisme lui-même, et ce qui est le fait de l'émotion plus ou moins intense qui accompagne en général les circonstances de l'accident.

On a été ainsi amené à distinguer: (1) des psychoses traumatiques véritables, résultant soit d'une lésion cérébrale localisée soit d'un ébranlement généralisé du cerveau (commotion cérébrale); (2) des psychoses émotionnelles, déterminées par le choc émotif, accompagné ou non d'un traumatisme crânien plus ou moins léger et n'ayant par lui-même aucun retentissement sur le cerveau; (3) enfin, des psychoses dites commotionnelles de la guerre, qui ne sont le plus souvent que des psychoses émotionnelles.

Nous ne dirons rien des accidents psychiques survenant lorsque le traumatisme a eu pour effet une lésion cérébrale localisée, soit par fracture du crâne, soit par lésions purement internes. Ils n'offrent pas de grande difficulté d'interprétation, car dans ces cas l'importance de la lésion organique suffit à faire la part du facteur traumatique.

Par contre, lorsque le traumatisme n'a déterminé qu'une commotion cérébrale avec un ensemble de symptômes diffus sans localisation particulière, les accidents mentaux du début peuvent ressembler à ces formes de confusion mentale aiguë à type amnésique que l'on observe après les grandes catastrophes et les

émotions violentes. Si bien que certains auteurs ont pu les attribuer au choc émotionnel plutôt qu'au trouble métabolique des cellules nerveuses dû à la commotion.

Plus tard, des accidents émotionnels, hystériques et psycho-névropathiques, peuvent s'associer aux syndromes confusionnels; mais il ne faudrait pas les confondre avec eux, et ce serait une erreur de croire qu'ils font toujours partie de ces syndromes. Beaucoup de commotionnés ne présentent aucune manifestation névropathique, et les états émotionnels purs diffèrent complètement des états commotionnels. En présence de ces cas, il s'agira donc de faire la preuve de l'organicité ou de l'origine fonctionnelle des troubles présentés.

Il nous a semblé que le problème pouvait être serré de plus près en utilisant à la fois les données cliniques déjà anciennes découlant de l'expérience de la guerre, et les notions plus récentes acquises par une étude plus approfondie des séquelles organiques des traumatismes crâniens portant en particulier sur le liquide céphalo-rachidien.

Il ne convient pas d'exposer ici en détail la symptomatologie des psychoses traumatiques; rappelons-en seulement les caractères fondamentaux.

Dans la psychose traumatique on retrouve toujours un rapport chronologique intime entre le traumatisme et le début des troubles mentaux. Ceux-ci succèdent immédiatement à la période comateuse ou semi-comateuse due à la commotion cérébrale violente, et prennent la forme d'une confusion mentale plus ou moins marquée, qui évoluera dans la majorité des cas en s'atténuant progressivement vers la guérison. Le malade présente toujours une amnésie lacunaire définitive pour l'accident lui-même, la période comateuse et une partie de la période confusionnelle qui lui fait suite.

On notera toujours en même temps chez les commotionnés des troubles profonds de la nutrition générale et des grandes fonctions organiques: amaigrissement considérable, insomnie,

\* Read at the Sixtieth Annual Meeting, Canadian Medical Association, Montreal, June 19, 1929.

déséquilibre vaso-moteur ("syndrome d'instabilité vasculaire" de Logre et Bouttier); des symptômes diffus de l'appareil nerveux, troubles moteurs, vivacité des reflexes, céphalée, douleurs musculaires et osseuses, vertiges et éblouissements. Ajoutons enfin qu'à la suite des commotions graves se terminant par la guérison, les malades continuent pendant longtemps, des mois et même des années, à se plaindre de fatigabilité physique et psychique ("syndrome subjectif des commotionnés du crâne" de Pierre Marie), et qu'ils restent souvent porteurs d'une émotivité exagérée.

La physionomie de ces symptômes est assez caractéristique, et parle bien en faveur de leur origine organique, mais voyons si l'examen du liquide céphalo-rachidien ne nous en donnera pas une preuve plus éclatante.

Il est classique d'observer des modifications du liquide céphalo-rachidien lorsque l'examen est fait à la phase de commotion, et dans les formes graves on peut même observer la présence de globules rouges en même temps que de l'hyperalbuminose et de la lymphocytose. Mais on admettait que ces modifications étaient transitoires et ne se retrouvaient plus après un certain temps d'évolution très court. Des observations plus récentes de Guillain, Sicard, Lortat-Jacob, Mestrezat, et Claude ont montré que certaines altérations discrètes pouvaient s'observer dans le liquide, même plusieurs mois après le traumatisme. Il est vrai que ces observations s'appliquent à tous les petits traumatisés du crâne. A plus forte raison devons-nous retrouver ces modifications dans nos psychoses traumatiques où la commotion cérébrale a été encore plus violente.

Les altérations de la formule chimique du liquide portent surtout sur le taux d'albumine qui a souvent été trouvée en excédent. Cette hyperalbuminose est tenace et dans une observation de Claude elle persistait encore quatre mois après le traumatisme. Mais c'est surtout dans les premières semaines qu'elle est notable, et dans les cas favorables on note souvent une courbe descendante qui va de pair avec l'amélioration des symptômes cliniques.

La réaction de Pandy n'a jamais permis de mettre en évidence la présence de globulines, et la glycorachie s'est montrée trop variable pour qu'on puisse lui attribuer une valeur quelconque.

On peut observer une légère lymphocytose dans les commotions récentes, mais cette réac-

tion méningée est toujours transitoire et disparaît bien avant l'hyperalbuminose.

Mais de toutes les recherches poursuivies sur le liquide céphalo-rachidien des traumatisés, la mesure de la tension est celle qui, d'après Claude et ses élèves, aurait donné les résultats les plus intéressants. Sur vingt-deux malades présentant des troubles post-traumatiques elle a été trouvée modifiée dans dix-sept cas, et les modifications observées peuvent être réparties en trois catégories: hypertension, hypotension, et instabilité de la tension.

L'hypertension rachidienne est le signe le plus fréquemment retrouvé et il s'agit en général d'hypertension modérée oscillant entre 25 et 35 cm. au manomètre. Toutefois l'hypertension intra-crânienne peut être plus élevée et aboutir à la production d'une véritable méningite séreuse.

L'hypotension serait très rare, puisqu'elle s'observe surtout, d'après Leriche, à la suite des traumatismes crâniens graves avec fractures.

Enfin, Claude a individualisé un syndrome d'instabilité de la tension céphalo-rachidienne qu'il rencontre chez les épileptiques, les psychopathes, et les traumatisés. Cette instabilité de la tension rachidienne serait en rapport avec le déséquilibre vaso-moteur cérébral, traduction du syndrome d'instabilité vasculaire générale décrit par Logre et Bouttier au cours des commotions.

Telles sont les principales modifications du liquide céphalo-rachidien que l'on remarque après les traumatismes crâniens, souvent même légers, et qui pourront être d'une grande utilité pour affirmer la nature organique des troubles psychiques post-traumatiques.

Nous avons eu dernièrement l'occasion d'observer, avec les Drs. Brousseau et Caron, quelques cas de psychoses traumatiques dont voici les observations et chez lesquels nous avons pu retrouver quelques unes de ces altérations.

#### PREMIÈRE OBSERVATION

Un homme, âgé de 38 ans, subit un traumatisme crânien en tombant d'une automobile en marche. Relevé pratiquement inconscient et transporté à l'hôpital, il commence immédiatement à présenter de l'agitation motrice avec insomnie, obnubilation intellectuelle, désorientation, fausses reconnaissances, propos incohérents et manifestations délirantes d'ordre professionnel. Il réalise en somme le tableau de la confusion mentale avec onorisme. Extérieurement, il présente une petite plaie contuse du cuir chevelu à région occipitale, mais la radiographie ne décèle aucune trace de fracture.

C'est quinze jours plus tard que nous voyons le malade. Il est encore confus, désorienté dans l'espace, présente des troubles de la mémoire de fixation et de fausses reconnaissances, mais à ce tableau d'état con-

fusionnel se surajoute une fabulation des plus actives. Ce sont des récits imaginaires portant surtout sur l'aviation (Il a voyagé avec Lindbergh, il a transporté le Prince de Galles en Angleterre, etc.). Peu à peu l'état confusionnel se dissipe, l'attention et la mémoire de fixation reviennent, mais la fabulation persiste, le malade devient irritable, réclame sa sortie avec violence, et présente même des idées délirantes de persécution. Il doit être interné. L'amnésie pour tout ce qui touche aux circonstances de l'accident est absolue; au point de vue physique, le malade se plaint de céphalée, il a maigri considérablement, mais ne présente aucun trouble neurologique appréciable.

Après quatre mois la plupart des symptômes mentaux avaient disparus, et le malade pouvait rentrer dans sa famille, bien que restant porteur d'une fatigabilité physique et psychique accentuée, accompagnée d'hyperémotivité.

La ponction lombaire pratiquée chez ce malade trois semaines après l'accident nous a montré un liquide non hypertendu, mais présentant une assez forte lymphocytose à 8 éléments par mm. cube et une hyperalbuminose à 0.45 par litre.

#### DEUXIÈME OBSERVATION

M<sup>me</sup>. P. L., âgée de 30 ans, mariée depuis l'âge de 17 ans, sans enfant, sans antécédent psychopathique, est la victime d'un accident d'automobile, le 29 août, 1928. Elle présente une phase de coma qui dure six heures, et commence à délirer immédiatement après. On remarque des contusions de la tête et des membres mais, pas de fracture du crâne à l'examen radiologique. Les troubles mentaux observés chez elle dans la suite sont surtout marqués par une obtusion intellectuelle presque absolue. Elle ne reconnaît plus personne, elle présente parfois de l'agitation avec insomnie et gâtisme. L'amnésie est complète et s'étend bien au delà de l'accident lui-même, la malade semble n'avoir conservé que des souvenirs d'enfance. Tous ses propos sont empreints de puérilisme. Elle mouille son lit comme dans son jeune âge, a peur de la correction, et demande à se faire changer.

L'examen neurologique nous révèle quelques troubles diffus: démarche incertaine, hyper-réflexivité tendineuse, plus accentuée du côté droit, avec tendance au clonus du pied, léger nystagmus des deux yeux dans la position extrême du regard. Tous ces troubles ont persisté tel quel pendant environ trois mois et l'obtusion intellectuelle avec puérilisme était si accentuée que l'on pouvait craindre une évolution vers la démence. Mais graduellement, nous avons vu la malade devenir plus attentive, la confusion se dissiper, et elle quittait l'hôpital six mois après l'accident conservant encore un certain puérilisme mais en voie de guérison.

Chez cette malade, la ponction lombaire, pratiquée un mois après l'accident, nous a montré un liquide non hypertendu, mais contenant trois lymphocytes par mm. cube et surtout une hyperalbuminose à 0.65 par litre.

Un second examen pratiqué quatre mois et demi après l'accident, alors qu'on observait une amélioration notable des troubles psychiques et physiques, nous a fait voir une courbe parallèle du côté du liquide céphalo-rachidien. L'albumine bien qu'à un taux encore supérieur à la normale était baissée à 0.32 par litre, et l'on ne retrouve plus qu'un lymphocyte par mm. cube.

#### TROISIÈME OBSERVATION

Une enfant de 13 ans est la victime d'une tentative d'homicide altruiste de la part de son père aliéné qui lui assène plusieurs coups de bâton sur le crâne. La perte de connaissance est immédiate et dure plusieurs jours, mais il n'y a pas de fracture du crâne après contrôle radiologique et aucun signe neurologique de lésions en foyer. Après une période confusionnelle à forme stuporeuse, on assiste à une restitution progressive et complète de l'état mental, sans modifications appréciables de l'émotivité.

La ponction lombaire dans ce cas n'a pas montré d'hypertension intra-crânienne, ni d'hyperalbuminose (albumine, 0.25 par litre); cependant une légère lymphocytose (4 lymphocytes par mm. cube) nous indique une réaction méningée qui est la signature organique des troubles présentés.

De l'exposé de ces faits nous sommes autorisés à conclure que les altérations matérielles du liquide céphalo-rachidien sont fréquentes à la suite des traumatismes crâniens sans fracture, et qu'en tous cas elles devront être recherchées systématiquement lorsqu'apparaîtront les troubles psychopathiques; ceci dans le but de poser le diagnostic sur une base organique indiscutable, et de porter un pronostic toujours si important tant au point de vue du malade lui-même que des conséquences médico-légales qu'il entraîne.

En terminant, permettez-moi d'insister encore sur ce dernier point. Le pronostic des états commotionnels graves doit être réservé même après disparition de la période confusionnelle. Les commotionnés restent souvent porteurs d'altérations physiques et psychiques très lentes à s'effacer. Signalons surtout la dépression mentale, l'asthénie, véritable neurasthénie au sens propre du terme, et l'impressionnabilité excessive de ces malades, qui peut en faire des invalides incapables de gagner leur vie.

Malgré la longue durée de ces troubles, il ne faudra pas toutefois s'empresse de porter un pronostic fatal et définitif. Il existe à ce propos une observation bien instructive de MM. Laignel-Lavastine et Brousseau (Société de Psychiatrie, 1921), dans laquelle on voit un malade présenter une régression considérable, presque complète des troubles psychiques, après quatorze années d'évolution d'une psychose traumatique.



## ACCIDENTAL HERNIAS AND THEIR COMPENSATION\*

BY EUGENE ST. JACQUES, M.D.,

*Professor of Clinical Surgery, University of Montreal,**Surgeon to the Hotel Dieu,**Montreal*

SOME eight years ago a composite committee of surgeons representing American and Canadian railway systems studied the question of the so-called "Traumatic or Industrial Hernias," and, after reviewing it from different angles, concluded by saying: "At present the situation in regard to dealing with the question of industrial hernia may be described as chaotic" (*Annals of Surg.*, Apr. 1922). After a perusal of the contemporary literature on the subject, it would appear that the same conclusion holds to-day; the situation still seems chaotic and to lead nowhere, steadfastly and clearly. After reading Sheen and McCready (England), Brouardel (France), Graser (Germany), and the more recent writers, Forgue and Jeanbreaux, Imbert and Remi, Patel, Moch, and Ruddick (*Canad. M. Ass. J.* 19: 675, 1928) one cannot but feel helpless to a certain extent to obtain a clear idea of the subject, to know what hernias are compensable, under what conditions, and to what extent. For inguinal hernias are not all alike. Surgeons of large experience know this, and Moch, also, has emphasized it: "It behoves us to tell just what type of herniæ should be compensated and which one should not." The committee of railway surgeons, referred to above, stated "This question of accidental hernia has become one of great practical importance," and they certainly voice the present opinion of those interested in industrial medicine, as well as that of many State Compensation Boards.

In the light of clinical evidence and large operative experience with hernias of all varieties, cannot some light be thrown on the subject, and some definite points or rules be laid down for guidance in this maze of more or less contradictory opinions? Let us look to precision and conciseness as a basis for clarity.

We shall not give any consideration to the embryological nor to the anatomical aspects of the question. Others have dealt with these well. Moreover, their practical bearing on the question is a rather meagre one. We shall simply consider:—

1. Terminology.
2. What are the conditions required to accept a hernia appearing under the stress of work as an "accidental" hernia, and consequently compensable?
3. What are the hernias which cannot be regarded as such?
4. What kind of compensation is advisable? For compensation ought to vary according to the degree and variety of the lesion.

Let us note here, as a simple reminder, that the signs of an incipient inguinal hernia are not equally appraised by all. Does an enlarged external ring alone constitute a beginning hernia? No. Does a slight bulging of the whole inguinal region, without protrusion of the bowel at the external ring, constitute an inguinal hernia? No. But, if the index finger feels an evident shock through the external ring, or the eye sees a slight bulging lump when the patient coughs or strains, then we have the two conditions indicating an incipient inguinal hernia. To which might be added a third sign of frequent occurrence, one really pathognomonic, that peculiar gaseous gurgling felt under the examining hand when the protruded bowel re-enters the abdominal cavity.

## TERMINOLOGY

The word "accidental" should cover all varieties of hernias appearing after any kind of injury. Why not reserve the name "traumatic" for such hernias, rare indeed, as result from a direct trauma or blow on the abdomen? The term "effort" hernia (*hernie d'effort*) should

\* Read before the Section of Industrial Medicine at the Sixtieth Annual Meeting of the Canadian Medical Association, June, 1929.

be applied to all other varieties of hernia developing under the stress of work.

#### ACCIDENTAL HERNIAS

True "traumatic" and true "effort" hernias are rare indeed. They require two sets of conditions.

First, as to cause: this is either a direct trauma or blow to the lower abdominal wall or a sudden intense and prolonged effort. Some would add an involuntary or reflex effort, but this is outside the pale of ordinary or usual work.

Secondly, as to circumstances, concomitant with or subsequent to the injury. These are: (1) A sudden and intense pain in the groin, forcing the man to leave his work and require assistance, medical or otherwise, or to report to his foreman. (2) The appearance of a painful lump in the groin, not large nor serotal, within twenty-four hours, which was not apparent beforehand. (3) Finally, pain on manipulation.

If these conditions are not present, at least the majority of them, then the hernia in question is not an accidental one (*hernie d'effort*), but only an aggravation of a pre-existing one.

The courts of law, of course, have not expressed a uniform opinion on this subject, judgments having been rendered in a contrary sense. As for medical men, some do not require all of these conditions to be present, so as to accept an accidental hernia as compensable. Moch does require them (p. 701), and the Surgeons' Committee of Canadian and American Railways is of the same opinion. (Rep. in *Ann. of Surg.*, April, 1922). Brouardel, the distinguished French leader in industrial medicine, considers the aforesaid conditions as necessary for accepting a hernia as of accidental origin. He insists on the history of an abnormal strain or effort, followed by such pain that it forces the man to leave his occupation at once. He also points to the small size of the newly appeared lump, as well as to the unilaterality of the hernia. Imbert and Chavagnac also require these conditions before accepting a hernia as of accidental origin, and the opinion of these French experts is a weighty one. Patel, in his exhaustive treatise on hernia, insists on the quasi-dramatic aspect of an accidental hernia. These, then, are the conditions under which an inguinal hernia ap-

pearing under the stress of work can be accepted as of accidental origin.

#### EXCEPTIONAL HERNIAS

Are there certain hernias which are not of a truly accidental character, at least completely? Yes.

The following ought not to be accepted as truly accidental hernias, but only as aggravations of a pre-existing condition. A hernia showing itself as a serotal one immediately after a strain cannot be looked upon as of accidental origin, properly speaking, for it is only an aggravation of a previously existing hernia, even if it had been unnoticed previously.

What about a bilateral hernia, which the claimant declares to have appeared as such after an accident? It is to be looked upon only as an aggravation of a pre-existing hernia, justly compensable, but to a limited degree only. There are instances of a severe trauma inflicted upon the abdominal wall which may cause bilateral hernia, but they are very exceptional.

What about a hernia accompanied by an undescended or ectopic testicle, and claimed to be of accidental origin? This is certainly not accidental, but at most an aggravation of a pre-existing hernia.

What about the omental hernia, which is usually irreducible? It is also of long standing, and, therefore, antedates the accident. It may have been aggravated by the injury, but nothing more.

We conclude, then, that the serotal, bilateral, and omental hernias, and that accompanied by an undescended or ectopic testicle, are of old standing, have a preformed sac, and that the accident is only an aggravating factor in the case of a pre-existing condition. All this places them in a class by themselves, which is important as regards compensation.

#### COMPENSATION

Finally, what amount of compensation is advisable according to the variety and degree of injury?

*The truly accidental hernia (traumatic hernia, or hernie d'effort).*—The courts in Canada, in England, and on the continent, have usually awarded compensation in such cases for a partial permanent incapacity of 10 to 15 per cent.

In the light of present day industrial condi-

tions and of the general desire to improve the health conditions of the workman, we would suggest that the workman ought to be offered: (1) Hospital and surgical attendance free, the expense to be paid by the employer. (2) Full-time pay from the date of the accident until 10 weeks after the date of the operation, plus 5 per cent partial permanent incapacity compensation as indemnification for the injury received. And he should be given 15 days for his decision.

Should the workman refuse operation, as he has a right to do, compensation ought to be allowed him on a 10 per cent partial permanent incapacity basis.

Should his age or general health preclude operation, compensation should be allowed him on a 15 per cent partial permanent incapacity basis, for, in that contingency, no fault rests with him for not undergoing operation.

*Aggravated hernias.*—Since all scrotal, bilateral, omental hernias, and hernia with ectopic testicle are to be looked upon solely as an aggravation of an old standing condition or pre-existing hernia, such aggravation deserves compensation also, but not to the same extent as in the former class. In these cases the workman ought to be offered hospital and surgical assistance for operation, gratis, and total incapacity pay from the time of the accident until 10 weeks from the time of the operation. He should be given 15 days for his decision, and nothing more. Should his general condition of health or age prevent operation a 5 per cent compensation for the aggravation of his former condition should be granted.

Should he refuse operation, no compensation should be granted for such aggravation of his former incapacity.

#### CLINICAL MANIFESTATIONS OF NERVOUS SYPHILIS\*

By G. A. McLARTY, M.B.,

Toronto

THE relation of syphilis to the nervous system was first recognized during the first great epidemic and was mentioned by several writers. Their opinions were not unanimous, because in 1790, many years later, John Hunter wrote "It would appear that some parts of the body are more susceptible to syphilis than others. Not only so, but many parts, so far as we know, are not affected at all: brain, heart, stomach, liver, kidneys and other viscera." In 1835 Lockwood demonstrated a collection of syphilitic brains. During the latter part of the 19th century discussion developed concerning the different forms, and in 1886 Fournier gave us the first conception that *tabes dorsalis* and *paresis* differed from other forms. Since that date our knowledge of syphilis of the nervous system has made rapid strides. In 1906 Wassermann described serodiagnosis. In 1907 Ravault demonstrated the spirochæte in the spinal cord. In 1913 the spirochæte was demonstrated in the brain by Noguchi and Panselle.

There are many pathological pictures described

which result from syphilis of the central nervous system, but, generally speaking, there are two great types; the cerebro-spinal syphilis with marked inflammatory involvement of the blood vessels and the immediate surrounding tissues, with little or no degeneration of the nerve cells themselves; and the parenchymatous type with little evidence of inflammatory involvement of the blood vessels, but with chronic inflammation of the nervous tissues themselves and degeneration and destruction of the nerve cells and fibres.

From a clinical standpoint it is possible to differentiate four different groups — First, *cerebro-spinal syphilis*, with early neurological signs, with or without subjective symptoms and a weakly positive spinal fluid. Secondly, *acute meningeal syphilis*, with marked signs and symptoms of meningitis and a strongly positive fluid with a high cell count. These two types are readily amenable to treatment and have a good ultimate prognosis. The two remaining types are *cerebro-spinal syphilis*, with marked neurological signs and symptoms, with a strongly positive fluid; and the parenchymatous types, *tabes dorsalis* and *general paresis* in which there is

\* Paper read at the meeting of the Ontario Medical Association, Hamilton, May, 1929.

definite evidence of nervous degeneration, with marked neurological signs and symptoms and a strongly positive fluid. These latter groups are strongly resistant to treatment, and, as some degeneration has already occurred in the nerve cells and fibres, have a much less hopeful outlook, and in many cases to stop the progression of the condition is the most hopeful clinical result that we can anticipate.

Until recent years the description given by writers and teachers of syphilis of the nervous system was almost entirely confined to the last two groups, which were less amenable to treatment and in which the signs and symptoms were the result of degeneration of the nervous elements. Certainly, the signs of Argyll-Robertson pupils, sensory ataxia, positive Romberg sign and absent knee-jerks and ankle-jerks, with the subjective symptoms of shooting pains, gastric crises, and incontinence of urine, are an accurate description of tabes dorsalis, but it is a description of a degenerative condition for which no form of treatment will materially alter the outlook. How much better would it be if this condition were recognized with signs of pupils sluggish to light, slight sensory ataxia, diminution of knee-jerks and ankle-jerks, with the subjective symptoms of mild shooting pains and frequency of urination. At this stage anti-syphilitic treatment would be of tremendous value, and would undoubtedly lead to a complete recovery.

With the object of studying cases of nervous syphilis, every patient attending the Special Treatment Clinic of the Toronto General Hospital was given a routine neurological examination, and an accurate record kept of these examinations. Several hundred cases have now been examined and I will give you the results of this survey.

Of the first 425 cases examined 173, or 41 per cent, showed evidence of involvement of the nervous system; 90 of these cases had positive spinal fluid; 22 refused spinal fluid examination.

In the 425 cases there were only 8 cases of positive spinal fluid without positive neurological findings. Of these 8 cases, 3 gave a history of syphilitic meningitis with a positive fluid and high cell count. These cases recovered without damage to the nervous system, but the spinal fluid remained positive. Two of these 8 cases were recommended for spinal fluid examination

because of a persistently positive blood Wassermann. Three were discovered during routine examination in the hospital while under treatment for some other medical condition.

In the 173 neurological cases there were: cerebro-spinal syphilis, 119; tabes dorsalis, 33; general paresis, 17; tabo-paresis, 4.

The average duration of the infection in the cerebro-spinal cases was 12 years, of the tabetic, 21½ years, and of the parietic, 22 years. The average ages were respectively, 41, 50, and 52 years.

An analysis of the results of the treatment reveals some very interesting results.

*Cerebro-spinal syphilis cases.*—Forty-one showed negative blood and spinal fluid; 61 showed no change; 16 showed negative blood and spinal fluid which later became positive.

*Tabetic cases.*—Twelve showed a negative blood and spinal fluid, but 9 of these showed no improvement in their neurological condition; 3 showed definite neurological improvement; 21 showed still strongly positive blood and spinal fluid and were neurologically unchanged.

*Paretic cases.*—Three showed negative blood and spinal fluid (2 of these 3 were definitely improved mentally and physically); 9 showed a spinal fluid strongly positive, and were neurologically unchanged; 4 were committed to Ontario hospitals.

The neurological symptoms, in the order of frequency, were: headache; shooting pains and other abnormal sensations; dizziness; bladder disturbance; visual disturbance; gastric and bowel disturbance; loss of motor power and other motor disturbances; auditory disturbance.

The neurological signs in the order of frequency were: pupillary changes; tremors; speech defect; reflex changes; sensory changes; motor changes; cranial nerve involvement.

The outstanding mental symptoms were failure of memory, changes in personality, spells of depression, and difficulty in concentration.

Many of these cases represent cases of neurosyphilis with which we are all familiar. Some, however, illustrate problems in diagnosis and treatment which are of sufficient importance to merit further consideration.

In the first group are two cases in which although treatment was begun at an early stage the blood Wassermann reaction remained persistently positive.

#### CASE 1

K. P. This patient reported for treatment February, 1924, with a rash of three months' duration and strongly positive blood. The blood Wassermann test became negative for three successive tests, but in August, 1925, was again very strongly positive, and remained strongly



positive until December, 1927, a period of twenty-eight months. Examination of the spinal fluid showed 32 cells with positive Pandy and strongly positive Wassermann tests.

## CASE 2

W. I. This patient, aged 30, reported to the clinic with a primary lesion of one month's duration. In November, 1928, his blood Wassermann test was strongly positive with three successive tests a week apart. The following four tests, made a month apart, were negative, but in May, 1929, the blood was again strongly positive. This patient shows no evidence of any neurological involvement, but should have a spinal puncture.

In the second group are two cases with acute involvement of the nervous system, resulting in complete clinical recovery and negative serological findings.

## CASE 3

N. C., aged 30. In October, 1923, he had a primary sore, followed six weeks later by a secondary rash. He had fifteen intravenous injections and the blood Wassermann test was negative in 1924. He was pronounced cured. On September 27, 1925, the patient woke up in the morning and found he was paralyzed on the right side. He was admitted to the hospital two weeks later, suffering from a definite hemiplegia. His spinal fluid showed 20 cells, with a positive Pandy and a very strongly positive blood Wassermann test. The patient was given a course of 7 intravenous treatments, followed by two courses of tryparsamide. He made a complete recovery. The blood and spinal fluid were both negative, and have remained so.

## CASE 4

R. F., aged 29. The patient came to the clinic complaining of headache and weakness of the left side of the face. Neurological examination showed bilateral optic neuritis, left sixth paralysis, and partial third nerve paralysis. The spinal fluid showed 23 cells, positive Pandy, and very strongly positive Wassermann tests. As the optic neuritis persisted decompression of the skull had to be done. The patient was given two courses of intravenous treatment and made a complete clinical recovery. His blood and spinal fluid were negative and have remained negative.

In group three was one case in which the development of neurological signs and symptoms occurred more than thirty-two years after the primary infection.

## CASE 5

D. K., aged 52, was admitted to the hospital because of paranoid delusions, failure in judgment and memory, and change in personality. The family had noticed no change in this patient until six months previously, and he had been an efficient worker until that time. He had a history of a primary sore when eighteen years of age, thirty-four years previously. He had received four mercury treatments at that time. He discontinued that treatment and had no further treatment in the intervening years. The patient had definite signs and symptoms of general paralysis. His spinal fluid showed 15 cells, a positive Pandy and very strongly positive Wassermann tests. He improved somewhat under treatment.

In group four was one case showing a persistently positive spinal fluid with treatment. The blood Wassermann test remained negative for more than three years.

## CASE 6

Mrs. L., aged 25, reported to the clinic in January, 1925, requesting a blood test which proved to be very strongly positive. The patient was given a course of treatment and blood became negative two months later, remaining negative until October, 1925, when it was very strongly positive. The examination of the spinal fluid at that time showed 96 cells, positive Pandy, and very strongly positive Wassermann tests. The blood Wassermann test had remained constantly negative since November, 1925, but the spinal fluid examination repeated in January, 1929, showed 4 cells, negative Pandy test, and a Wassermann test very strongly positive.

I should like now to say a few words in regard to the treatment of neuro-syphilis. As a general rule the earlier the neurological condition is recognized the more amenable is the condition to treatment, and the more hopeful the prognosis. The ordinary forms of arsenical treatment, along with mercury, bismuth, and iodides, appear effective in the early cases. But in the case of the long standing cerebro-spinal and parenchymatous conditions these forms of treatment do not appear efficient.

There are three outstanding forms of treatment which appear useful for these conditions. The Swift-Ellis treatment, in which salvarsanized serum is injected intraspinaly following drainage, has produced some good results in some cases. The malarial treatment, in which the malarial organism is injected into the blood stream, appears, according to the literature, to produce remissions in about 30 to 35 per cent of cases. This treatment has not been used extensively at the Toronto General Hospital. The tryparsamide treatment consists in courses of ten intravenous injections of tryparsamide, an arsenical preparation which is more readily absorbed into the nervous tissues. This latter treatment has been used at the Toronto General Hospital for several years with uniformly good results.

## CONCLUSIONS

1. Neuro-syphilis occurs as a complication in a large percentage of syphilitic cases, and may involve the nervous system at an early stage of the condition.

2. Acute involvement of the nervous system by the syphilitic organism responds readily to treatment, but the parenchymatous types show

little response to the ordinary forms of arsenical treatment, yet show good results from treatment with tryparsamide.

3. The Wassermann test of the blood is of little or no value as a guide to the diagnosis and treatment of neuro-syphilis, but a persistently positive blood Wassermann test in spite of treatment is an indication for examination of the spinal fluid.

4. Neurological examination of syphilitic patients is of tremendous value in recognizing syphilis of the nervous system, which may be present and progressive even in the presence of a negative spinal fluid.

5. Spinal fluid examination should be done as a routine and should be negative before any pa-

tient is discharged from a clinic as a recovered case.

6. The general condition of the patient and the response of the spinal fluid to treatment are the most efficient guides in determining the efficacy of that treatment.

#### REFERENCES

1. TILNEY, F., Nelson's Loose Leaf Living Medicine, 6: 185.
2. FORDYCE, J. A., AND ROSEN, I., *J. Am. M. Ass.* 77: 1696, 1921.
3. SOLOMON, H. C., AND KLAUDER, J. V., *J. Am. M. Ass.* 77: 1701, 1921.
4. KIRBY, G. H., *Ont. J. Neuro-Psychiat.* p. 16, May, 1928.
5. DATTNER, B., quoted by Wagner-Jauregg, *Wien. klin. Wchnschr.* 38: 1163, Oct. 22, 1925, (Abs. *Ars Medici*, 1926).
6. NONNE, M., *Med. Klin.* 21: 1829, Dec. 4, 1925, (Abs. *Ars Medici*, 1926).

### OBSERVATIONS ON THE DIAGNOSIS AND TREATMENT OF PRIMARY ANÆMIAS\*

BY EDWARD S. MILLS, M.D.,

Montreal

AMONG the most interesting and sometimes trying problems in clinical medicine are the diagnosis and treatment of the so-called primary anemias. The blood is a tissue constantly on the move, traversing in a matter of minutes the entire vascular system. It is in intimate and constant contact with organs and tissues, whether in a state of health or disease. The blood, therefore, will be readily affected by any pathological process within the body. Before ascribing alterations in the blood to dysfunction of its parent tissue, the bone marrow, a careful search must be made for disease in other organs, and the effect of this on the blood estimated. The diseases which must be excluded include sprue, splenic anæmia, intestinal parasitism, hæmolytic ictero-anæmia, and neoplasms, especially of the stomach. Such studies require time and patience, both on the part of the patient and the physician, and not infrequently the aid of most present-day clinical and laboratory

methods. When these secondary types of anæmia can be excluded as a result of a thorough investigation, the differential diagnosis of the so-called primary anæmias rarely presents great difficulty.

The primary anæmias are all of unknown etiology. There may be many types, each one dependent on a different cause. Until these are known, they may be conveniently divided into three clinical groups, for purposes of classification and treatment. In the first group are those anæmias met with in young women from puberty to the third decade. Physical examination reveals no apparent cause. The subjects are well nourished but pale, waxy, bloodless, rarely ever greenish in colour. They complain of weakness, loss of energy, and tendency to fatigue. Instances usually occur in the winter or spring and among persons leading an indoor life. We have met with many cases of this type in the undergraduate nursing staff, in otherwise healthy women. The blood usually shows slight if any reduction in the numerical count of the red cells, but the hæmoglobin is commonly in the vicinity of 45 to 60 per cent.

\* Read before the Canadian Medical Association at the Annual Meeting, June, 1929. (From the Medical Service of Dr. C. P. Howard.)

The leucocytes are unaltered, but the platelets are often increased. The red cells are pale in appearance and may show slight variation in size and staining. Achlorhydria is not infrequent, but atrophy of the tongue, splenomegaly, and degenerative cord changes are not found. These cases are probably present day instances of chlorosis, though the disease has altered somewhat in its clinical features. Unlike the oldtime chlorotics they do not respond promptly to the ordinary doses of inorganic iron, such as Bland's pill, though massive doses are sometimes effective. In our experience the most gratifying results in these cases have been obtained from ultra-violet irradiation, though there is a tendency to relapse during the winter months. It is usually necessary to repeat the courses of irradiation treatment at regular intervals.

The second group includes cases of anæmia most commonly arising during pregnancy or in the post-partum state. The victims are young women in the third or fourth decade, who may have borne a number of children in rapid succession, or the disease may have arisen during or after a single pregnancy. In no instance will the blood loss during labour account for the degree of anæmia. The patients complain of weakness, lack of energy, and such vague symptoms as headache, cold extremities, palpitation, or puffiness of the ankles. They are usually well nourished, but obviously anæmic, presenting a waxy rather than an ieteroid tint. A number of these patients will show some atrophy of the tip and edges of the tongue, and a considerable number, achlorhydria, signs which are apt to prejudice the unwary clinician in favour of pernicious or Addisonian anæmia. The spleen is not palpable and cord changes rarely if ever occur.

The blood examination reveals a secondary type of anæmia, one in which the red cells are proportionately less reduced than the hæmoglobin. Though the anæmia may be of grave proportions, the color index is always low. The polymorphonuclear cells are often suppressed, as in pernicious anæmia, producing a leucopenia with a relative lymphocytosis. The platelets are normal or diminished. The van den Bergh reaction on the blood serum is negative, and the urine urobilinogen is present in normal or diminished amounts.

We have followed in the out-patient department some twenty of these patients for periods of from one to five years, during which time their blood picture varied but little, improving a little in the summer but losing this improvement the following winter. The anæmia never reaches the grave proportions of the Addisonian type. It appears to drop to a certain level and be maintained there. With the institution of liver therapy for anæmia many of these patients were put on whole liver, but without the success anticipated. In fact, several showed no improvement whatsoever, either in general well-being or in the blood picture. In addition to liver the effect of several vitamine concentrates, of ultra-violet irradiation and of Bland's has been tried. While it is as yet too soon to deny the value of these drugs in isolated cases, it has been our experience that these patients as a group do best on massive doses of the inorganic salts of iron. The ordinary dosage of Bland's pill, from 15 to 30 grains daily, has not been found effective. When much greater daily doses, from 60 to 90 grains, are given, in the form of capsules, the majority of these patients show prompt and remarkable improvement. Within a month they feel better, look better, and the blood hæmoglobin shows a decided rise. If these patients can be persuaded to take out-of-doors exercise, and generally to lead a more guarded life they appear to remain well. On the other hand, the majority of our patients have found it necessary to return to the iron after varying intervals. The tendency to constipation resulting from such large doses of iron may be combated by suitable doses of any mild laxative. Where achlorhydria is found dilute hydrochloric acid should be given, 20 minims in a full glass of diluted orange juice.

The third group includes true pernicious or Addisonian anæmia. The extraordinary success of liver and liver extract therapy in this disease has lent a tremendous impetus to its study, but so far the cause of the anæmia remains undetermined. It is by no means certain that it is a hæmolytic process. Recent investigations would seem to point to dysfunction of the bone-marrow as the probable immediate cause—a tremendously active bone marrow producing only small numbers of abnormal and immature cells—histological hyperplasia with functional inefficiency.

The recognition of the disease depends essentially upon a triad of clinical findings. The first is evidence of sclerosis in the posterior or lateral columns of the spinal cord. Paræsthesia, that is, abnormal sensations such as numbness and tingling, is present in practically all cases at some period or another. Where paræsthesia is present it is usually possible to demonstrate a diminution in two-point discrimination and in vibration sense over the tibiae. If the process is allowed to advance it assumes one or other of the following neurological pictures; (a) the spastic type with exaggerated reflexes and clonus, or (b) the tabetic type with abolition of the reflexes. The latter is about twice as common as the former. However, only a very small proportion of cases properly treated show either of these advanced pictures, so that the recognition of cord changes in pernicious anæmia depends usually on the demonstration of alteration of two-point discrimination or vibration sense. Of equal or even greater importance from a diagnostic standpoint is the finding of achlorhydria in the stomach contents, which should be demonstrated in all cases.

The recognition of the changes in the blood characteristic of pernicious anæmia requires neither the training nor the laboratory of a hæmatologist. They can be demonstrated with the aid of a hæmoglobinometer, a microscope, a hæmocytometer, and a few slides, all equipment which the medical student of to-day owns and should be able to operate. Estimation of the number of red cells and the hæmoglobin will reveal a colour index of one, or higher. The leucocytes will be diminished, especially the polymorphonuclears, and, lastly, and of the greatest diagnostic significance, the average red cell will be larger than normal. A dried unstained film of blood compared under the microscope with a similar film of your own blood will in a pinch prove it to your satisfaction. Do not pin your faith on anisocytosis,

poikilocytosis, polychromatophilia, or stippling, for these are features of most grave anæmias and are in no sense diagnostic. If a case of anæmia under consideration does not show achlorhydria, signs or symptoms of cord changes, or the blood changes just outlined, nine times out of ten it is not pernicious anæmia, and calls for further investigation.

Having established the diagnosis, the treatment, thanks to liver therapy, presents little difficulty. It is well to remember that not all brands of liver fraction on the market are potent. The sole test of potency is its effect on a case of pernicious anæmia, and the good effect should be obvious clinically during the first fortnight of treatment. If it is not, change to another make, or give the patient whole liver.

In our experience the best method of giving this is as follows. Put a half pound of raw liver through a fine meat grinder several times, add enough water to make it the consistency of thick cream, then strain through cheese cloth to remove any fibre. The resulting pulp may be taken at a single sitting. This method of giving liver has a number of advantages. It is of known potency, the total amount taken is readily computed, and, lastly, it leaves the patient free to select any diet to which his fancy may turn.

It should be borne in mind that cord changes, once established, cannot be altered by therapy. Success depends on early recognition of the disease before they are well established, and such treatment as will promptly restore the blood to the normal level and maintain it at or about that level. The price of allowing the blood level to drop is often irrevocable changes in the spinal cord. Where the spastic or tabetic changes are present before therapy has been instituted, re-education by a competent physiotherapist, in conjunction with the liver therapy, will do much towards making the patient a useful and happy member of society.

**PROPOSED STANDARD FOR MAYONNAISE SALAD DRESSING.**—Upon the recommendation of the Food Standards Committee, a joint committee including representatives of the Association of Dairy, Food, and Drug Officials of the United States, the Association of Official Agricultural Chemists, and the United States Department of Agriculture, the Secretary of Agriculture has adopted the following definition and standard for mayonnaise

salad dressing: Mayonnaise, Mayonnaise Dressing, Mayonnaise Salad Dressing, is the clean, sound, semi-solid emulsion of edible vegetable oil and egg yolk or whole egg, with vinegar or lemon juice, and with one or more of the following: salt, spice, sugar. The finished product contains not less than 50 per cent of edible vegetable oil, and the sum of the percentage of oil and egg yolk is not less than 78.—*Indus. & Engin. Chem.*, p. 1315, 1928.



## THE TREATMENT OF PNEUMONIA\*

BY E. S. MOORHEAD, M.B., (Dublin).

*Winnipeg*

IT may seem to require a good deal of temerity to re-open a subject on which, until some new discovery has been made, the last word has been said. I am far from agreeing with any such point of view. The dramatic side of lobar pneumonia has always appealed to me. The sudden onset, sometimes "like a bolt from the blue," equals anything that the novelist can portray. There are the hours and days of fluctuation between hope and despair, when you watch every move of the enemy, and estimate every reaction of the invalid. All the vitality of the patient, and all the skill and science of the medical and nursing professions are called into play in the endeavour to defeat a microscopic object which is fighting for its existence. There is the knowledge that relief is in sight, whether the time be measured in days or only hours. You feel that once the crisis is reached you can breathe freely again, but realize that any slip on your part may be for the advantage of the foe. When you have considered pneumonia from this viewpoint, you will agree with me that there is nothing more dramatic in art, literature, or science.

That there is as yet no agreement about the method of treatment is easy to prove. Only a very few years ago the Section of Medicine at a meeting of the British Medical Association devoted a considerable amount of time to discussing the relative merits of whiskey and tincture of digitalis, each side agreeing that the important matter was to keep the heart functioning for eight days. That conference ended in stalemate, for none of the protagonists would acknowledge that there was merit in the views of the other.

If there was the marked benefit in the treatment by serum that is claimed then the No. 1 strain would occupy a position somewhat similar to that held by diphtheria antitoxin. Its failure to do so may be for definite reasons. The public ward patient, whether of good or poor physique, is usually admitted at least 48 hours after the onset; frequently the period is

much greater than this. In our private work, where we are called in at the beginning of the illness, treatment is begun at once, and, therefore, even without serum, the mortality is low.

Leaving out individuals, I could divide my lobar pneumonia patients into two groups: (1) the boys at St. John's College school, a residential school where the boys are from 9 to 18 years of age, and where with the assistance of games, outdoor exercise, and sensible diet, the physique is excellent; (2) the group found in the public wards. If I were to institute any line of treatment which would be carried out impartially on these two classes, the results would only increase the confusion, for I imagine that there would be a wide divergence in the findings. In parenthesis, I may say that I have only had one death from lobar pneumonia amongst the boys in a period of over 20 years.

I have come to the conclusion that there is one ideal treatment, the method which will give you the best results, one which will leave you with the feeling that you have done your best for the patient, whether the outcome be favourable or the reverse, and that ideal treatment is the one in which you yourself believe. I think that success is due to the fact that one's interest is so much aroused in watching the results of treatment that you study the progress of the case at frequent intervals, prepared to counter every move in the game, or to take advantage of every favourable reaction. When you have a patient who is seriously ill with pneumonia, I think that three visits a day are not a bit too many. Few will deny that it was the assiduous and unremitting care and attention of his medical advisors which had much to do with the King's recovery from his recent illness.

What then as to treatment? I do not agree with the "laissez faire" treatment which appears to be fashionable of late, wherein a good nurse is installed, tincture of digitalis is prescribed, and the patient and the germ are left to fight it out between them. As to the merits of fresh air, lack of exertion, hydrotherapy, and nourishment, I think that everything necessary has been said.

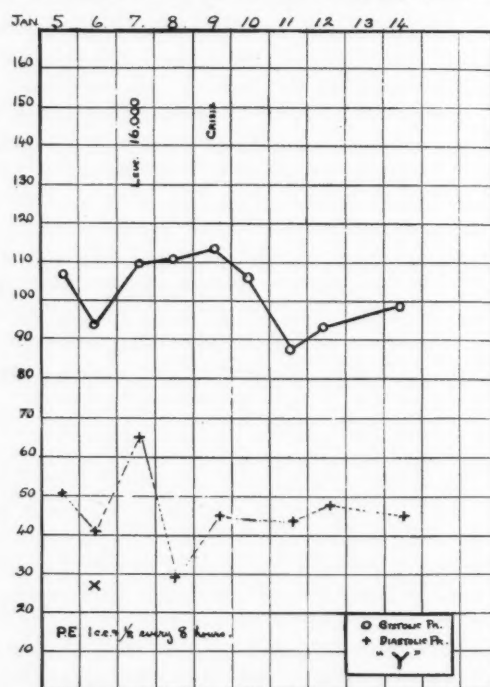
\* Read before the Winnipeg Medical Society, October 18, 1929.

There is one point to which I should like to draw your attention. Of recent years I have been giving sugar, in one form or another, in fairly large quantities. If you appreciate the fact that there is a great deal of muscular exertion associated with the rapid heart and respiration, and that the high fever must also account for destruction of tissue, you will agree that katabolism must be countered. Anabolism will have to wait on convalescence. Sugar or glucose is easily administered, and does not usually nauseate the patient; it is rapidly oxidized, supplying material for the increased metabolism that is taking place, and thus saving the vital tissues. I am not at all sure that the benefit from whiskey is not along the same lines. Though I sometimes use whiskey freely in pneumonia, I am not prepared to defend its action as a direct heart stimulant.

Several years ago, a boy who was desperately ill with pneumonia, having passed through his crisis, went into a condition of collapse. For about three days I gave him glucose and whiskey freely, and he recovered. During this time several blood pressure readings showed an exceedingly low systolic pressure, 82 being, I think, the lowest recorded. I did not at that time appreciate the possible significance of this symptom, but a few years later I began to watch the blood pressure in these cases, and to have the readings taken regularly and entered on the chart at least twice a day. I came to the conclusion from my observations that a blood pressure which dropped steadily in a serious case of pneumonia had the same dangerous significance as a temperature which dropped towards normal, while the pulse and respiration were rising. I further decided that when the systolic pressure had reached 100 mm. every effort must be made to raise it. In several of these cases I used glucose or sugar, but I also resorted to pituitary extract. I do not claim for the latter that it is the ideal or the best; it is however the drug that I decided to use in my investigation. When necessary I begin with a dose of 1 c.c., and then administer 0.5 c.c., hypodermically every eight or twelve hours, as the occasion demands.

You will note several points of interest in the charts. I show one typical case of pneumonia (V) where I did not consider it necessary to use pituitary extract. This man (who was treated by diathermy) subsequently developed an empyema from which he recovered. You will note in another that, though the injections ap-

peared to prevent the rapid fall which was taking place, they did not bring it above the 100 mm. reading. I do not think that a fall in the pressure after the crisis is of particular significance, provided that the patient's general condition is satisfactory. This low pressure will usually right itself in a few days. Though the charts record the diastolic pressures, I am not referring to them in any way. I believe that diastolic and pulse pressures have a certain significance. Quantities of literature have been issued to show what deductions can be made. I have not yet been able to find anything positive in either the diastolic or the pulse pressure, nor can I deduce anything from the readings which would assist me in the treatment of my patients.



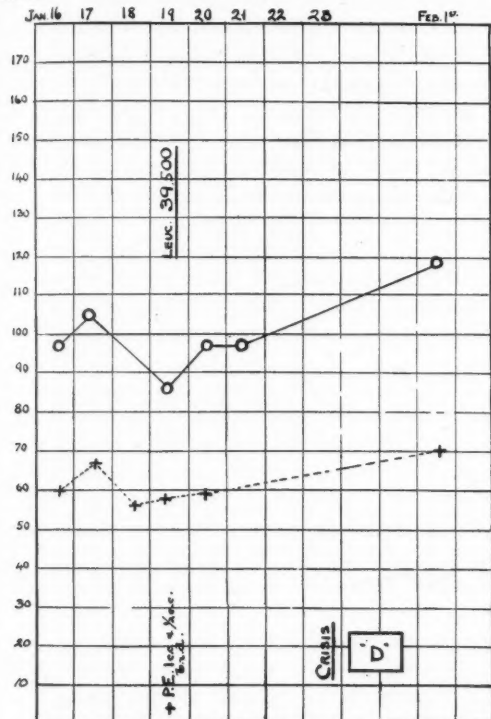
CASE 1

(Y) This boy aged 16, was admitted on January 5th. He had been ill for three days. His temperature was 104; pulse, 100-120; respirations, 28-40. Diagnosis, lobar pneumonia. He was given pituitary extract on January 6th, because the systolic pressure was found to be below 100. The chart shows the fluctuations of pressure, and particularly that point I mentioned where the pressure frequently drops after the crisis, which in this case took place on January 9th. He was given glucose freely on and after January 8th.

CASE 2

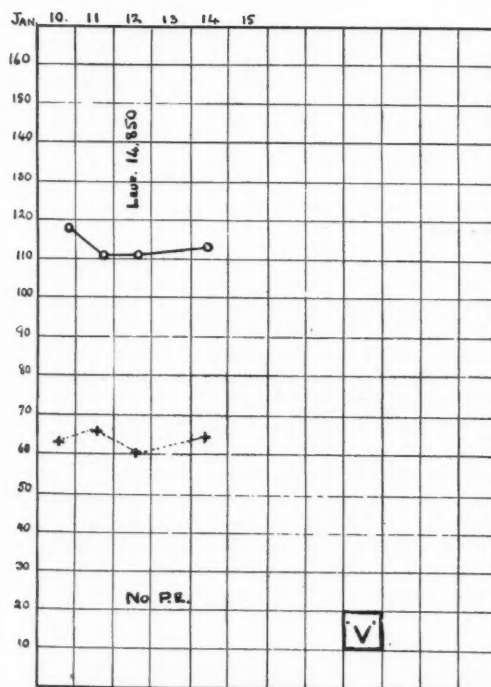
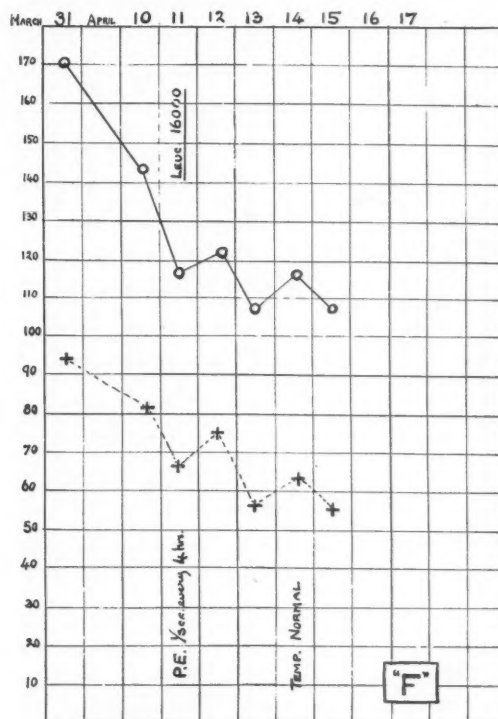
(D) A male, aged 23, had been ill for two days when admitted on January 16th. Temperature, 103.2°; pulse, 120; respirations, 28, with a leucocyte count of 39,500 per c.mm. He was given pituitary extract for the first

time on January 19th when his systolic pressure was found to be 86. As you see, the reading did not go above 100 until some time after his crisis which took place on January 23rd.



## CASE 3

(V) This case had a satisfactory pressure throughout and did not require assistance from pituitary extract.

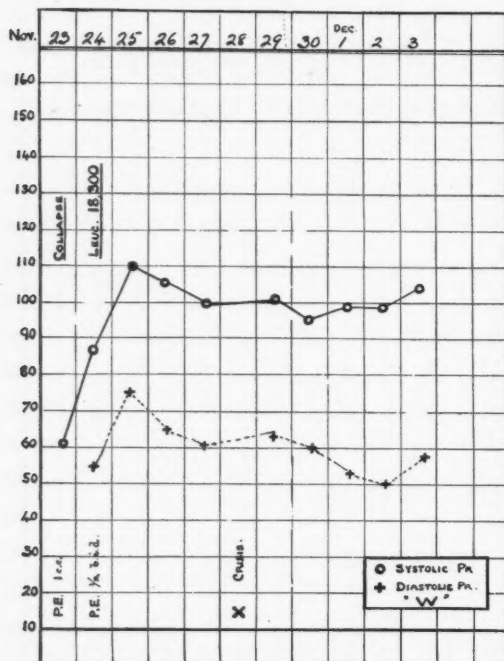


## CASE 4

(F) A male, aged 72, was admitted on March 31st, 1927, under Dr. N. J. McLean, for a first stage prostatectomy, which was done on the following day. His blood pressure at that time was 170-95, which, as I know, was normal for him. He developed a hypostatic pneumonia a few days later, at first involving the right base, and later the left. When I was asked to see him on April 10th, his pressures were 146-82; next day as you see they were 116-62. The leucocyte count was 16,000 per c.mm. On account of the steady decrease in pressure, he was given pituitrin, 1-3 c.c., every four hours. Though there were fluctuations subsequently, the steady drop had ceased. The temperature reached normal on April 14th, and he was discharged on April 30th.

## CASE 5

(W) A male, aged 38, was the most impressive case I have seen in a long time. I was called to the patient's residence by Dr. Victor on the eve of November 23rd, 1928. He had been ill for two days; his temperature was 99.2°. The physical findings justified our making a diagnosis of lobar pneumonia. Subsequent investigation showed a leucocyte count of 18,300 per c.mm., and pneumococci were present in the sputum. When I saw him he was collapsed, and appeared to be moribund. We took his blood pressure and picked up a few beats at 62, nothing higher, and fading a few millimetres lower. The only course one could take was to send him into hospital, though we both feared that he would die on the way. He was given pituitary extract, 1 c.c., before being moved, and 0.5 c.c. every twelve hours afterwards. On November 24th, the pressure had risen to 86; twenty-four hours later the pressures were 110-74. He had his crisis on November 28th, and was discharged on December 6th.



You will ask what I expected to accomplish by my remedies. I can only reply that as long as our treatment consists in counteracting mortality, one must weigh all the factors. My observations over a period have shown me that the mortality was increased when the pressure was low.

Similarly, it is known that very high or very low temperatures are dangerous. We treat these latter with hydrotherapy or external heat, as occasion demands. Is it not reasonable to

treat the lowered pressures with some agent which will bring them towards normal? I think this will answer the very just criticism that I am treating a symptom and not the disease. It would be so easy to say that I increase the vascular tone, and thus encourage the elimination of toxins. We smile at our forefathers, who spoke of purging the body of its humours, but will not posterity laugh at us for saying exactly the same thing with more impressive words.

#### SUMMARY

Until we have a specific treatment for pneumonia, we must study the evidences of morbidity, and endeavour to counteract any unsatisfactory tendency.

In its essence, the treatment of lobar pneumonia consists in carrying the patient to the time of crisis, after which recovery usually takes place. We watch carefully the fluctuations of temperature, pulse and respiration, as indications for treatment. Is there not good reason for including a record of the variations in the blood pressure? If part of our treatment consists in basing our conduct of the case on evidence supplied by other instrumental records, are we not justified in using whatever means we consider advisable to control any unfavourable tendency as recorded by the sphygmomanometer?

I have to thank Drs. McLean and Victor for permission to use the records of their cases, and my internes of various periods for estimation of a large number of blood pressures; also Messrs. Parke, Davis and Company for a liberal supply of "vaso-pressin" which was used on some of these, and on several other similar cases, with satisfactory results.

**APPLES FOR DYSENTERY.**—Old popular remedies have a happy knack of turning up again, to the joy of sceptics, cynics, and other non-progressives. The latest revival is the use of apples in dysentery, typhoid, and other acute and chronic diarrhoeal disorders of infancy and childhood. Prof. Moro, professor of diseases of children in the University of Heidelberg, recently discovered in an old book that apples were reputed to be a sovereign remedy for these disorders, and set himself to determine what grain of truth might lie in this. Accordingly children with high fever and dysentery, often seriously ill, were given ripe apples mashed into a purée, as much as 20 to 50 ounces daily—equivalent to 7 to 20

moderate-sized apples. Nothing else was given for two days, not even water. After this a diet consisting of stale bread and butter, toast, mashed potatoes, lean meat, cream cheese, bananas, and cocoa was given for another two days, and then the child resumed its normal diet. Fifty-two cases—some frank dysentery, others of non-specific acute and chronic diarrhoeas of childhood—were treated on these lines with excellent results; within 12 to 24 hours the fever had fallen, the diarrhoea had stopped, and the child looked well. No bad effect was observed; relapses were very uncommon, and when they did occur were easily cured by another "apple-day." No medicine was given.—*The Lancet*, March 8, 1930.)



AN UNUSUAL REACTION FOLLOWING ARSENICAL TREATMENT  
OF SYPHILIS\*

BY NOBLE BLACK, M.B.,

*Toronto*

[I]t is fortunate for those of us who are called upon to treat luetic patients that severe reactions occurring during or following the use of arsenical preparations are very rare. The use of arsenic in this disease at some time or other is almost a universal practice. I have no doubt that we all realize that in giving such a treatment we are assuming a great responsibility, and that we may do our patient very serious harm, in fact, such harm as may result in his death.

The following case is presented as an example of one of the serious reactions. It has been announced as a case of benzol poisoning. The question as to whether it was the benzol in the arsenical preparation,—and you will remember that all these preparations have a benzol ring in their chemical make-up—or the arsenic itself which caused the damage is, I think, a debatable point. But, whichever it was, you will see that it resulted most disastrously for the patient.

Such cases are seldom seen. In fact, so far as I can find out, this is the only case which has occurred at our syphilis clinic at the Toronto General Hospital. Four cases have been seen in the wards of the hospital, and I have been able to find two dozen or more reported in the literature.

## CASE REPORT

N. H., a female, aged 28 years, came to the clinic in May, 1929. The blood Wassermann test was very strongly positive. Her general condition was apparently good, although she looked rather pale. She was started on the usual dose of a "914", or "Neo", preparation and received one intravenous injection per week for five weeks, getting in all about 3.0 gm. of this arsenical preparation. When she came to the clinic in the fifth week she mentioned having noticed two bruises on her body, one on her shoulder and one on her hip. She thought that she might have injured herself, although did not remember having done so. She felt well; her

appetite was good; her van den Bergh reaction was negative. She was given her fifth treatment, and sodium thiosulphate was prescribed, 10 grains, three times a day by mouth. One week later she had more petechial spots and was feeling tired. She was advised to have a week's rest and continue the sodium thiosulphate. On her return, most of the spots had disappeared and her only complaint was a slight soreness of her gums beneath a partial plate. I suggested having her teeth attended to, and as it is our custom to follow our arsenical courses with a course of mercury, I gave her one injection of mercury. This seemed to be the match which set off the powder, for about 36 hours later she took serious-ly ill.

The first thing noticed was bleeding from the nose, of such severity that ordinary measures failed to control it. Then her gums, which already were sore, became rapidly swollen and started to bleed. Her stools were black and tarry. She had a temperature of 100° F. She was taken to the hospital on July 29th and given 500 c.c. of fresh blood by direct transfusion. At this time her blood picture in part was: red cells 3,000,000; white cells 2,000; polymorphonuclear leucocytes, 20 per cent; lymphocytes, 70 per cent.

Four days later she was again transfused, 600 c.c. of fresh blood being given. After this second transfusion, all bleeding seemed to stop, her general condition improved and she was allowed to go home. A few days later, however, her saliva again began to be blood-stained and soon her gums were again swollen and bleeding. Her cervical and submaxillary glands were markedly swollen. She was returned to hospital. At this time her blood examination showed red cells 1,700,000; white cells, 2,900; hæmoglobin, 42 per cent (?); colour index, 1.2; platelets markedly decreased. No eosinophilic, basophilic or neutrophilic leucocytes were seen; lymphocytes were increased. Between August 13th and 23rd she was transfused four times, each time with distinct clinical improvement, except the last time when she was beyond help of any kind. However, her blood picture steadily became worse. The red cells varied between 1,700,000 and 2,000,000; the white cells slowly fell from 2,900 to 1,800. The hæmoglobin varied from 25 to 31 per cent. On August 18th she showed 80 per cent lymphocytes, with considerable variation in size and shape of these cells. During this time her coagulation time varied from 8 to 10 minutes, as compared with the normal time of 4 minutes, and her bleeding time was 30 minutes, as compared with the normal 5 minutes. The clot showed no retractability. During the whole period of her illness her temperature varied between 100° and 107° F., showing the typical chart of a septic condition. Her pulse was between 100 and 160. During this period her van den Bergh test was always negative and the urine examination showed no sign of kidney damage. Her blood culture was also negative.

On August 24th she began to show marked mental dullness, and a friction rub could be heard at the base of both lungs. On August 26th typical signs of bronchopneumonia were evident and she died.

It may be of interest to mention the other treatment which was carried out besides the transfusions

\* Read before the Section of Preventive Medicine and Hygiene, Academy of Medicine, Toronto, November 28, 1929.

(From the Special Treatment Clinic, Toronto General Hospital).

during her stay in the hospital. She was given large doses of sodium thiosulphate and calcium lactate as well as ferrum redactum and the juice from 600 grm. of fresh liver daily.

A post-mortem examination was made which showed besides the broncho-pneumonia, a liver moderately enlarged, a spleen smaller than normal, petechial hæmorrhages throughout the gastric and intestinal mucosa, and fatty degeneration of the marrow of the long bones.

#### COMMENTS

The first comment I should like to make is that all such cases, reports of which I have reviewed, have been cases treated with a "neo" or "914" preparation.

Second: cases of benzol poisoning, occurring in industrial plants where benzol is used in some process of manufacture, show exactly the same clinical and blood pictures as the above recorded case, namely: leucopenia; a marked but less marked loss in red blood corpuscles; capillary hæmorrhages, giving rise to bleeding from the gums, nose bleed, intestinal hæmorrhage and purplish spots in the skin. Benzol poisoning produced experimentally also shows these same changes.

Third: and this is where our diagnosis is in doubt; I am assured by leading chemists that it is impossible to split off the benzol ring from

this compound, and, of course, to have free benzol the compound would have to be broken up.

Fourth: if we could suppose that the product could be broken down and all the benzol liberated we would have about 1.3 c.c. of benzol produced. Benzol has been used as a therapeutic agent in doses of 0.3 to 0.6 c.c. So that this patient received in eight weeks what would be a fair dose for one day. Perhaps we may assume that she was unusually susceptible to the drug.

Fifth: a previous history of disease of the hæmatopoietic organs, or a family history of hæmophilia or pseudo-hæmophilia is found in a number of reported cases. This patient gave a rather indefinite history of such a condition in some members of her family.

Sixth: could this condition have been caused by the single dose of mercury which was given, or perhaps by the arsenic itself? The absence of kidney damage is against its being mercury poisoning and, besides, signs of trouble were present before the mercury was given. Considering all the details, I am inclined to think that it was the arsenic, although the usual signs of arsenic poisoning were absent.

### THE DANGER FROM MENINGOCOCCUS CARRIERS\*

WITH THE REPORT OF A CASE TO WHICH TWO DEATHS ARE ATTRIBUTED

By D. M. ANGEVINE, M.D.

Montreal

MRS. D., a young Italian, 22 years of age, lost her first baby in the Hôpital Sainte Justine, Montreal, on February 4th, 1929. The doctor who first saw the child made a diagnosis of cerebro-spinal meningitis. The hospital records state that the child died of broncho-pneumonia. No autopsy was performed.

#### CASE REPORT

Eight months after the death of her first baby, the mother brought her other child to Dr. R. R. Struthers on account of an earache. Both ear drums were bulging. The mother was instructed to syringe the ears three times daily and to follow this with drops of cocaine solution. A week later the ears were much better. The pain, however, became more acute and the child was admitted

to the Children's Memorial Hospital, Montreal, on October 23rd, with vomiting, restlessness, temperature of 101°, slight rigidity of the neck, and a petechial rash. Both ear drums were injected and the left drum was bulging. Because of the cerebral symptoms a cisternal puncture was done and it revealed clear cerebro-spinal fluid under a slightly increased pressure.

On the following day a bilateral paracentesis revealed an acute bilateral suppurative otitis media.

Two days after admission the rigidity of the neck became more marked, the temperature was 104°, and there was a bloody discharge from both ears. A lumbar puncture was done and a pure culture of meningococcus was obtained. A direct smear of the acute exudate from the middle ear showed both intra- and extra-cellular Gram-negative, biscuit-shaped diplococci in great numbers. Most of the organisms were intra-cellular and practically filled the cytoplasm of the polymorphonuclear leucocyte which contained them. The meningococcus was obtained in pure culture from this exudate.

The child died within a few days, and the clinical diagnosis was acute bilateral suppurative otitis media due to the meningococcus, and acute cerebro-spinal fever.

\*From the Pathological Laboratory of the Montreal General Hospital, and the Children's Memorial Hospital, Montreal.

*Post mortem*—(C.M.H. A-29-29). A purulent exudate was found about the base of the brain and also in both middle ears. The meningococcus was again obtained from the meninges and from the middle ears.

Because this was possibly the second child in that family to die from cerebro-spinal fever within a comparatively short time, Dr. Struthers suspected one of the parents to be a carrier of meningococci and brought them both to the bacteriological laboratory of the Montreal General Hospital for investigation.

On November 21st, cultures were taken with West swab tubes from both anterior superior nares, the naso-pharynx, and both faucial tonsils of the mother and father. The swabs were immediately stroked on fresh, warm, moist blood agar plates. Eighteen hours later several suspicious looking colonies were seen on the blood agar plate which had been seeded with a swab from the right faucial tonsil of the mother. These proved to be gram-negative diplococci with the morphology of meningococci. The remainder of the cultures from the mother and all those from the father were negative.

In order to confirm our findings the parents were again brought to the hospital on December 4th. The same set of cultures were taken and Gram-negative biscuit-shaped diplococci were again found on the culture from the mother's right faucial tonsil. All the other cultures were negative.

On both occasions when the cultures were being taken it was noted that the mother's tonsils were injected and quite markedly hypertrophied. She never had had cerebro-spinal fever. She was sent to the out-patient department of the hospital with the recommendation that a tonsillectomy be done. Up to the present she has not consented to this.

The suspicious looking colonies were subcultured on blood agar slants, and were found to form typical grayish, smooth, sharply outlined and semi-translucent colonies which did not form pigment. The culture failed to grow at room temperature and fermented dextrose and maltose to acid.

The organism was agglutinated by Type III antimeningococcic (diagnostic) serum in dilutions of 1:20; 1:40; 1:80 and 1:160. There was no agglutination with normal horse serum in dilutions of 1:25 and 1:50.

As a result of the bacteriological examination given above we felt fully justified in reporting the mother as a carrier of meningococci.

#### MENINGOCOCCUS CARRIERS

Meningococcus carriers are divided into two classes, active, and passive, and they are much more numerous under the following conditions:— (1) when there is overcrowding, (2) during the cold months, (3) when epidemics are at their peak and (4) when epidemics are severe.

Active carriers are those who have had cerebrospinal fever and harbour the organism during convalescence. They rarely convey the disease to others, largely because they have not the opportunity of doing so. Von Lingelsheim, to whom we owe so much of our knowledge of the dissemination of cerebro-spinal fever, found the meningococcus in the naso-pharynx of about 66.6 per cent of cases before the fifth day of disease. He also observed that this percentage decreased rapidly as the illness progressed, so that after the 20th day he was only able to find the meningococcus in 4.39 per cent of people who had had cerebro-spinal fever. He was able to obtain isolated colonies in one case three months after the onset of the disease.

The findings of Mathers and Herrold are also of interest. They report that after an epidemic of cerebro-spinal fever in the U. S. Army 38.2 per cent of the cases were found to be carriers a short time after recovery. At the same time the contact carrier rate among 15,000 men in the same camp was found to be 43.6 per cent.

Passive carriers are those who have been in contact with the patient and it is conservatively estimated that from 10 to 15 per cent of the attendants, members of the family, and friends, become carriers. Chronic passive carriers in army camps have been found to vary from 2 to 5 per cent. Mathers and Herrold found 4.4 per cent of carriers among 15,257 soldiers. Of these 1 to 2 per cent proved to be chronic carriers. This is about the generally accepted percentage. The duration of the passive carrier stage varies considerably, but in the majority of cases averages from two to four weeks. However, 4.92 per cent of 185 carriers harboured the organism for a period of over twelve weeks (Flack).

The above figures emphasize the importance of the carrier in the spread of this disease, in fact, Rosenau says that cerebro-spinal fever is disseminated almost wholly by carriers.

#### HABITAT OF THE MENINGOCOCCUS

Simon considers that the organism develops in the clefts of the lymphatic structures of the naso-pharynx, namely, the pharyngeal and fau-

cial tonsils, and several observers have obtained the organism from the secretions of the tonsillar recesses.

The incidence of positive cultures of meningococci from different locations in the upper respiratory tract of 93 passive carriers is shown in the following table:—

Source of Cultures	Positive	
	Number	Percentage
Naso-pharynx.....	66	70.9
Tonsils.....	29	31.2
Anterior superior nares.....	16	17.2
Sputum.....	12	12.9

The following statements are of interest and importance in their bearing upon the spread of cerebro-spinal fever in general, but more especially so in the case of the mother and her two babies reported above.

1. "The more intimate the contact between

the carrier and his victim, the greater the danger, and it is for this reason that a carrier mother will prove a particular menace to her children and these in turn to each other." (Simon.<sup>1</sup>)

2. "A mother who nurses a meningococcus infant is sure to become a carrier and *vice versa*." (Rosenau<sup>2</sup>).

#### CONCLUSION

In the case reported above we feel justified in concluding that a mother who was a meningococcus carrier was the source of infection for her two children. The father was probably not a carrier.

#### REFERENCES

1. SIMON, C. E., Human Infection Carriers, p. 116, Lea & Febiger, Phila., 1919.
2. ROSENAU, M. J., Preventive Medicine & Hygiene, p. 256, Appleton, New York, 5th edit., 1927.

### UNDULANT FEVER WITH THE REPORT OF A CASE\*

By J. H. WESLEY, M.D.,

Newmarket, Ont.

MANY of us wonder what we have done to practically exterminate the old fashioned typhoid fever, in that we now do not often see a case. But when you meet a case of mild, intermittent fever that will not yield to any treatment, but continues for weeks and months in moderate undulations across the chart, think of the disease that it attracting special attention at the present time—undulant fever.

Undulant fever is not new, but is spoken of in medical works as "Malta fever," and was supposed to be confined to the island of Malta and other Mediterranean ports, originating, according to Sir David Bruce, among the troops from the ingestion of infected goat's milk. In 1907 Bruce isolated the *Micrococcus melitensis* from the blood and organs of infected animals as the cause, and was able to recover the same organism from the blood of soldiers suffering from Malta fever. Much valuable information is frequently obtained by accident, and so it was found that goat's milk which had been infected by the micrococcus was the cause of undulant fever. In 1905 sixty-five goats were shipped from

the island of Malta to the United States. The ship's crew drank the milk and nearly every one who drank the milk developed undulant fever. The proof of the origin of the disease was in the discovery of the micrococcus in the blood of many of the goats.

Dr. Alice Evans was the first to prove that undulant fever in man is the same disease as contagious abortion in cattle. These affections are very closely related and there is a similarity in the organisms recovered. Cattle, sheep, goats and pigs are known to be affected with contagious abortion and there is but slight difference in the strain of the bacteria recovered from the different animals. *Brucella abortus* (as the micrococcus is now called in honour of the discoverer, Sir David Bruce, of the Mediterranean Fever Commission) has been known to cause abortion when introduced into cattle, and women suffering from infection with the *Brucella abortus* have been known to abort and the organism has been recovered from the placenta.

According to Hardy, more than one thousand cases have been diagnosed in forty-two of the American States, in the last seventeen months. Lately, cases have been reported in Ontario, and

\* Read before the York County Medical Society at Newmarket on December 4, 1929.



as the disease is new to most of us, the report of my own case may be of some interest.

Preventive means consist either in the isolation, or, better, in the destruction of the infected animals. As contagious abortion affects cattle, the young heifers are more susceptible than the older ones of the herd, and will abort two or three times and then acquire an immunity. Contagious abortion is the biggest menace to-day to the dairyman and the stock breeder. A single case getting into a herd will result in deterioration and loss of very many of his herd. Often the whole herd will become infected and a breeder will be several years cleaning up. And now, when it is generally known that the disease is becoming quite common in the human race, it becomes imperative for health authorities and legislative bodies to adopt very stringent legislation to eradicate this unwholesome disease from the source of the most important part of our food products.

The disease in man disappears when the products of the infected animal are not used, whether it is the meat, milk, cream, or butter. It is said the attendant of a cow that has recently aborted is more likely to develop undulant fever than one drinking the milk from such a cow. Further, it should be made a punishable offense for any one to sell or offer for sale an animal known to be infected with *Br. abortus*. It should be made compulsory for the vendor of milk to obtain a veterinary certificate on the examination of his dairy cattle and procure a permit to sell milk and cream.

#### CASE REPORT

About the 13th of last October, B. A., a garage owner, 39 years of age, complained of feeling weak, tired, and having general aching pains. He expressed his feelings by saying that for several days he wanted to sit on top of the stove and yet could not get warm. He had loss of appetite and noticed the first elevation of temperature on October 15th when he sent for his physician.

The patient had always been a well developed, strong, healthy man. He had served in the World War and carries a 10 inch scar on his side as a mark of service. Otherwise, he had always been healthy and well.

From the first he had a repugnance even to the smell of food and could not stand the smell of the cooking in the home. He had no swelling of the joints, but had orchitis to a slight degree. He had sweats at night, a slight cough, and considerable enlargement of the spleen. Early in the history of the case there were rigors and some nose-bleed, but no abdominal signs, such as rose spots, distension, tenderness, diarrhoea, or offensive stools. When in France he was inoculated against typhoid at different times, so that there was no

surprise when the report for the blood test came back from the laboratory, negative for typhoid, and paratyphoid. But the report read "positive for *Brucella abortus*." Now, *Br. abortus* is the specific organism and the cause of undulant fever in man, and, after a little reflection, it dawned on the writer that the laboratory workers of the Public Health Department were entitled to a great deal of credit for their valuable assistance in diagnosing a very important disease that is quite new in Ontario.

This man has been sick for forty-six days and the fever does not show much sign of abating.

The course of the disease usually lasts over a period of three weeks to four months, but the death rate is very low.

The differentiation of this disease from typhoid, pneumonia, miliary tuberculosis, malaria, pernicious anæmia, colon bacillus infection, syphilis and influenza takes much thought. The case usually does not cause much worry, as the patient does not appear to be seriously ill. However, the persistence of the fever, the evening rise to 102° or 103°, and the morning remission to 100°, the same every day, week in and week out, soon exhausts the patient's courage.

The source of the infection has been definitely found to be the lower animals that have lately suffered from contagious abortion. It has been shown that the disease is carried to man by the ingestion of milk, cream, or butter from infected animals. Though the writer has seen many cases of contagious abortion in cattle, the herdsman apparently seems to be immune. In this particular case it was no trouble to go to the source of the milk supply and have the cattle tested for contagious abortion. Of five cows examined the blood of three was reported positive for this infection, at the Provincial Veterinary College, and Dr. Walker has been kind enough to place the report in my hands. The three blood samples that were positive were taken from three thoroughbred Guernsey cows that were purchased by the dairyman at public auction about two months previously.

As for the treatment of undulant fever in man, it does not appear to make any difference what one does,—the fever "takes the even tenor of its way," despite any line of treatment. So far, there has not been very much accomplished by an anti-serum, but the real treatment is in its prevention and the cleaning up of contagious abortion in the dairy herds.

Contagious abortion has been prevalent since time immemorial, since the time in Biblical history when Jacob kept his father-in-law's flock.

Jacob was a good caretaker, for in the twenty years he tended Laban's flocks, he had no abortion, so what Jacob was able to do in those early times, we should be able to accomplish in the light of our modern science.

Veterinary surgeons believe they get good re-

sults in the treatment of infectious abortion in cattle by the use of a polyvalent serum. The Mulford Biological Laboratory has prepared a polyvalent serum for the treatment of undulant fever in man, but as yet there has been very little definite information regarding it.

## Case Reports

### PRELIMINARY REPORT ON A CASE OF TULARÆMIA

By H. D. LOUIS HUDSON, M.B.,

Timmins, Ont.

G. B., a male aged 34; an underground miner for twelve years.

*Personal history.*—His previous health had been good; no severe illnesses. He was living in the same house with a person suffering from active tuberculosis for three months last fall.

*Present illness.*—He was well until December, 1929. His weight was 198 lb. in June, 1929. Routine x-ray examination for the Silicosis Board showed no evidence of silicosis or tuberculosis. He was pronounced fit to work underground.

Three months ago the patient skinned and dressed two wild rabbits. There was no history of cuts, sores, or glandular involvement. On December 11th sudden severe pain was complained of in the right upper quadrant of the abdomen, lasting one day. He was then free from pain and felt quite well for four days. On the fifth day pain returned, accompanied by fever and malaise. From December 16th to 28th he was confined to bed with fever, general malaise, prostration, and profuse sweating, accompanied by chills. He never vomited.

*Physical examination.*—December 28, 1929. A well developed and well nourished white male, 34 years of age, in bed, looking sick, and suffering discomfort in the right upper quadrant of the abdomen.

*Eyes.*—Reactions normal; conjunctivæ showed slight jaundice. *Ears and nose,* normal; *tongue,* coated and dry. *Respirations,* 22; *pulse,* 90. No constipation; no diarrhœa. The stools were of normal colour and well formed.

*Chest.*—A few musical rhonchi were heard

over both lungs. The heart's action was regular; no murmurs; no enlargement. Blood pressure, 128/80.

*Abdomen.*—There was slight distension, with some tenderness and rigidity over the gall-bladder area.

*Reflexes.*—Normal.

*Skin.*—Two pigmented areas, the size of a quarter, were noticed on the right side of the abdomen. *Glands,* no enlargements felt.

*Urine.*—No albumin or sugar present; it was dark and straw-coloured. The specific gravity was 1030.

*Blood.*—White blood corpuscles, 12,000 per c.mm. The Wassermann test was negative. The agglutination test was positive for *B. tularensis*, 1-80 and 1-160; negative for *B. typhosus* and *B. abortus* (January 4, 1930).

January 9, 1930.—Chills and fever occur every second evening, the temperature ranging during the chills from 100° to 103.5° since December 29, 1929.

January 17th.—Since January 9th the same type of chills and fever persisted. He had had pain over the lower border of the liver and right kidney area. *Urine,* specific gravity, 1020; negative for albumin and sugar. Musical râles were heard over both lungs; marked prostration with evidence of emaciation. The chills lasted from twenty minutes to three hours.

January 29, 1930.—No chills since January, 17th. There was still pain in the right upper quadrant, with some cough. The chest was fairly clear and seemed much improved. The blood gave positive agglutination with *B. tularensis* (complete, 1-80 and partial, 1-160).

January 28, 1930.—The patient appeared to be convalescent, though tired; no jaundice. The tongue was moderately furred, muscles fairly firm, knee jerks sluggish. Skin, palms and axillæ, moist. The pigmentation of the ab-

domen was gone; no obvious anæmia. There were a few moist râles over the lower right chest behind. Heart normal; blood pressure, 120/80.

The abdomen was well filled and nothing abnormal was felt; some tenderness over the right kidney area. The spleen and liver appear a little larger than normal, to percussion.

The red blood corpuscles were 4,500,000 per c.mm.; white blood corpuscles 12,000 per c.mm. The agglutination test was positive for *B. tularensis* (1-40).

The urine was negative for sugar and albumin. *B. tuberculosis* was not demonstrated in the sputum on staining. (Guinea-pig inoculation due in six weeks.)

*X-ray examination report* (from Dr. N. H. Russell, Timmins).

"Stereoscopic films were taken showing both kidneys and ureters. Both kidneys are larger than normal, the right kidney being somewhat more so than the left. There is no evidence of any stones, either in the kidneys or ureters.

Stereoscopic films were taken of the chest. In these the bony thorax and great vessels are normal. The heart shows a definite broadening at the base, probably due to lack of tone. The hilus shadows on both sides are increased and are of the soft type, showing that the drainage from both lungs is in excess of what one normally finds. The linear shadows through the right lung are well marked, but there is no definite area of either consolidation or pulmonary tuberculosis. On the right side also, the middle lobe, there are two small calcified glands about midway out in the lung field, at a point corresponding to the second rib anteriorly. There are also small calcified nodules in the hilus draining this area. This condition is probably indicative of an old tuberculous condition of slight extent. At the base of the right lung there is also a calcified nodule corresponding with the ninth rib posteriorly, and lying midway out in the lung field. This is also probably an area of old healed tuberculosis. The diaphragm on this side is smooth and rounded, and the costo-phrenic angle is well marked. On the left side the linear markings are increased, but there is no evidence of pulmonary tuberculosis, either recent or old. The diaphragm on this side is smoothly rounded and the costo-phrenic angle well defined."

The patient is much improved at the time of

writing, but is unable to work yet. The treatment has been purely symptomatic, with the exception that novarsan was given intravenously. The further progress will be reported in a later issue.

#### CONCLUSIONS

A case of tularæmia.

The examination was negative for pulmonary tuberculosis, but indicated a rather diffuse infection of the lungs, of a chronic type, with an organism of low-grade virulence.

#### A CASE OF ECTOPIC GESTATION AT FULL TERM

By A. H. SINGLETON, B.A., M.D.,

*Rouleau, Sask.*

On January 16, 1930, Mrs. S. consulted me regarding an increasing enlargement of the abdomen and continued weakness. The family history was negative, as was also the personal history.

The menses began at 15 years of age, of the 23 to 28 day type; always regular, no dysmenorrhœa.

She had ten children living; no miscarriages. One child died a month after birth. Between pregnancies, the periods were always regular, and the patient felt well in every way. All of the children were delivered naturally.

*Present illness.*—In November, 1928, the patient menstruated normally, but missed in December. In January, 1929, she menstruated quite normally for three days; then for three weeks she menstruated steadily, but the discharge contained very little blood, and was watery in type. Irregular for the year, she has been the same since, never having complete relief from the blood-watery discharge.

In April, 1929, she noted an enlargement in the abdomen. Up till this time, she was nauseated, vomiting occasionally, and was troubled with much gas in stomach and very severe cramps in the vicinity of the womb. Following these cramps, she became greatly distended with gas. These attacks came about every week until after October, 1929, from which time she improved. The tumour gradually increased in size. In her own words, "It was real round on the left side, gradually in-

creased in size, real sore to touch and aching all over." In September she was quite sick with "neuritis," a severe pain in the left side, lasting about three weeks. During the latter part of September, she felt a "whirling moving" feeling in the tumour which she did not attribute to "life", but to gas, etc. After this, the patient gradually became stronger. At the time she felt the moving large blood clots came away from the vagina.

*Physical examination.*—The patient was tall and thin, toxic, tired looking and poorly nourished. The abdomen was the size of about an eight months' pregnancy, and was very tense on palpation. Nothing could be palpated but the hard rotundity of the tumour. The non-pregnant cervix was felt, and the uterine sound proved the uterus to be empty and pressed to the right side of the pubic bone. The diagnosis was ovarian cyst, and operation was advised and accepted.

The operation was performed in the Moose Jaw General Hospital on January 18, 1930, under ether anaesthesia. A sub-umbilical incision was made, but the tumour was so adherent to the abdominal wall that it was necessary to open the abdominal cavity higher up. On doing this the tumour was found to be adherent to everything in the abdomen except the kidneys, spleen, and liver. The temptation to put in a trochar was resisted and after a long and trying ordeal the almost universal adhesions were separated without damage to anything. Some of the largest veins in the tumour wall would have admitted a good-sized little finger. Finally, it was possible to enucleate the tumour entire, when it was found to have originated from the left side of the pelvis; it had no pedicle; and nothing could be seen of the left tube or ovary.

On opening the cyst, a full term fetus was found, fully developed, not macerated, and apparently normal, except for the exaggeration of the normal flexures from the pressure of the tight cyst wall. Both placenta and cord were quite macerated, however. The cyst wall seemed to be entirely fibrous, and pathological examination showed this to be the case. The patient made a good recovery being in the hospital just under three weeks.

The problem of diagnosis was a poser, but it would seem strange that development to full

term and retention for two or three months longer could be possible and the patient (although the mother of ten children) should be quite sure that she was not pregnant.

In the *British Medical Journal* for November 23, 1929, is the report of a case very nearly identical with the one here reported.

My thanks are due to Dr. Dunnett, of Avonlea, for kindly referring the case; to Dr. Goodwin, Moose Jaw, for assistance; and Dr. Toombs for administering the anaesthetic.

### A NATURAL COMPLETE APPENDECTOMY

BY J. C. DIAMOND, M.D.,

Fort William, Ont.

Mrs. D., aged 41 years.

*Personal history.*—Irrelevant.

*Family history.*—She was a widow, her husband having died two years ago from carcinoma of the head of the pancreas; eight children.

*Present illness.*—Three years ago this patient had been in bed for three weeks owing to a pain in the abdomen. She was treated at the time for what the attending physician called "intestinal flu." After recovery from the attack she never felt perfectly well, as she had dragging pain in the right side, about the level of the umbilicus. For the last year or so the pain had been getting worse, and she felt sore below the right costal border. She had also belching of gas. The pain would shoot into the right shoulder. Her appetite was fair and she was mildly constipated. The pains were never colicky in character, and she had not had jaundice.

*Physical examination.*—Examination of the head, neck, and chest was negative. The liver was tender on palpation, and was enlarged to two fingers' breadths below the costal border. The fundus of the gall bladder was palpable and tender to touch. The spleen was not palpable. The appendiceal region was quite tender. The pelvic organs were normal. Urinalysis was negative. The Wassermann test was negative. A diagnosis was made of cholecystitis with obstruction in the cystic duct from stone or stenosis, hepatitis, and chronic appendicitis.

An incision through the right rectus muscle revealed a large, soft, and smooth liver. The gall bladder was large and its wall greatly



thickened and adherent to the duodenum; the cystic duct was stenosed to the size of the lead in a pencil; there were no stones. There were no signs of malignancy in the stomach, pancreas, or liver.

The gall bladder was removed, but the notch of the liver was not sewn as the hepatic tissue was very friable and there was considerable oozing. I put in a Penrose drain with iodoform packing.

The appendix was then looked for, but no signs of it could be found. I dissected the cæcum from its bound-down bed, and even some of the appendices epiploicæ were dissected, but all I could find were a number of adhesions and a thick scar at the point where the appendiceal opening into the cæcum had once been.

The patient made an uneventful recovery, except for the fact that the wound drained pus for two weeks from the eighth day after the operation. Now, three months after the operation, the patient feels very well, and is doing her own housework. The liver has diminished in size, reaching only to the costal border.

My opinion is that this patient at some time or other (perhaps during her illness three years ago) had had a complete strangulation of the appendix at the point where it was attached to the cæcum, and that the appendix had sloughed away, absorption and natural healing eventually taking place.

## GIANT-CELLED TUMOUR OF THE UPPER JAW

By H. W. COATES, M.D.,

Vancouver

Mary H., born in Surrey, England, in 1881.  
*Family history.*—Irrelevant.

*Personal history.*—When a child she had had measles; whooping cough at the age of 26; and had had trouble with "gumboils" on both jaws as a girl.

The patient first wore an upper denture at the age of 18. This was a partial plate, extending more on the left side than on the right. In 1906 she had had nineteen teeth removed, and in 1907 had full plates, but still had five teeth in the lower jaw, and two in the upper. The latter two were an incisor and a canine on the right side.

These plates fitted the patient very well. A supporting wire was attached to the canine tooth (right side), but did not touch the gum. This tooth was removed in 1915; also, all the lower teeth, later on she was given new plates.

In July, 1919, the patient went to see a dentist about the repair of the plates, as, by this time, some teeth were missing. It was then that the growth was discovered and advice given to see a doctor.

The patient informed me that she had no idea when the growth started, but had noticed some slight pain in April, 1919, and at about that time did not sleep well, but this was not due to pain. In June, 1919, she noticed the right cheek pressed against her glasses, and in July noticed a bad taste in her mouth when her teeth were out.

*Examination.*—On examination of the patient, I found a reddish cone-shaped tumour about  $1\frac{3}{4}$  inch in length, with a base a little more than  $\frac{3}{8}$  inch in diameter, pointing backwards, and gradually tapering to a blunt summit forwards. This tumour was on the right upper jaw, attached by a pedicle about half an inch from its base, connected with the interior of the antrum through a perforation of about  $\frac{1}{4}$  inch. The tumour itself extended forward to about where the canine tooth should be, and presented a surface like a brambleberry. There were no natural teeth.

After a couple of days' preparation, the patient was anaesthetized and the anaesthesia was continued by conduction through the nose. In this case, the carotid artery was not ligatured.

Assisted by Dr. L. H. Appleby, an incision was made below the right eye along the malar bone, along the side of the nose, then inwards, closely hugging the nasal cartilage, and downwards through the lip. The flap was quickly freed, everted, the periosteum of the orbit raised, and the cartilage of the nose separated from the bone, with very little bleeding. A swab was placed in the back of the throat to absorb the blood.

Three Gigli saws were then quickly placed, one passing into the orbit under the periosteum over the maxillary process of the malar bone, through the spheno-maxillary fissure and back, a second through the nares up under and above the nasal process of the superior maxilla, the third by way of the nares over the hard palate to the posterior edge. The soft palate was here

perforated, the saw passed through and returned by way of the mouth. The first and second saws were rapidly drawn through the parts; the third, after dividing the soft palate from the posterior edge of the bone, was likewise used and severed the remaining bond of union. With a pair of lion forceps the bone was, by a twisting and pulling movement, separated from its neighbours. There was very little bleeding in this case, and full scope was present for the application of forceps and ligature.

The patient is quite well at present, weighs

162 lbs., and there is no evidence of return of the growth.

The pathological report from the Vancouver General Hospital pronounced it a giant-celled sarcoma.

It is quite obvious that with a much larger tumour, or a more advanced condition, the bleeding might have been much more severe, but even then, thanks to the rapidity of the operation and easy access afterwards, I believe the bleeding could quite easily be controlled.

## Retrospect

### SURVEY OF RECENT LITERATURE ON DIABETIC TREATMENT

BY HEBER C. JAMIESON, M.B.,

*Department of Medicine, University of Alberta,  
Edmonton*

A medical writer of fifty years ago said that diabetes mellitus was a rare disease in America but very common in Europe. This perhaps explains why so many treatments, both dietary and medicinal, have come out of Germany.

From the time of Düring's "rice cure" in 1852 various dietary cures have appeared in Europe. Until the work of Joslin in America, von Noorden's "oatmeal cure" was the one favoured in both countries. The experimental work of Allen and the practical application of his findings by Joslin, made the "starvation diet" popular. Later, the "high fat diet" of Newburgh and Marsh was introduced. Woodyatt brought forward a "balanced maintenance diet" which was widely used. The revolution in treatment, due to the discovery of insulin, for a time overshadowed all dietary methods. When it was found that dietary control was advisable in all cases, whether they were on insulin or not, more carefully supervised attempts were made to find the ideal arrangement of food for the diabetic.

During the last year many articles dealing with the management of the diabetic patient have appeared. A number of these have been in German journals. A brief survey of these will be of interest. The writers have dealt mainly with two aspects of the problem. Treatment by rearrangement of the three foodstuffs, with or without insulin, bulks largest. The reports on the use of various medicinal agents play a smaller and less important part.

D. W. Falta believes that any deviation from a normal diet should not be entertained. Special days of restricted diet are quite unnecessary and

the use of larger and adequate doses of insulin is advisable. Gastro-intestinal disturbances are controlled by a diet of cereals and vegetables for a short time. He disapproves of Petren's diet, which allows liberal amounts of fat and limited quantities of protein and carbohydrates. In general he frowns on any diet which is not well balanced.

Professor Jansen, of Bonn,<sup>1</sup> begins his treatment with two starvation days on which are given 220 grm. of meat broth and 50 c.c. of brandy. A quarter of a litre of wine is allowed, and as much tea as the patient wishes. The sugar leaves the urine quickly, but the acetone may or may not diminish.

At the end of two days what he calls a "fundamental diet" is instituted and maintained for from ten to fourteen days. There is 0.75 grm. of protein and 2 grm. of fat per kilo. A patient weighing 120 lbs. receives 300 grm. bouillon, one egg, 120 grm. cheese, 50 c.c. milk, 200 c.c. red wine, coffee or tea with saccharin only. A small amount of 5 per cent carbohydrates is included. Jelly made from tea, coffee, cocoa, or unsweetened fruit juices may be used. If the urine becomes sugar and acetone free on this, 20 grm. of bread or 40 grm. of potato are added every second or third day. The blood sugar should not exceed 120 mgm. per cent, fasting. If sugar reappears the starvation day is ordered. It is usual to reach a tolerance of 40 to 60 grm. of carbohydrate. In this manner he arrives at a permanent diet in which he gives 1.5 grm. of protein and 35 calories per kilo of body weight. When this fails Jansen has recourse to the Petren system.

Petren gives unrestricted quantities of 6 per cent vegetables, 200 to 250 grm. butter or bacon, 50 grm. cream and the required amount of calories. This is continued for six weeks if necessary, in order to try and keep the blood sugar at 120 mgm. per cent. Where this fails insulin is given. When the diet alone accomplishes the effect desired there is a gradual increase of food,

Bread in 10 grm. amounts, meat in 30 grm., an egg every two or three days are added. Severe diabetics, with acidosis and a blood sugar above 200 mgm. per cent, are placed at once on the above basic diet with the addition of 30 grm. of bread and sufficient insulin to keep the urine sugar free.

Dr. Bauer, Vienna,<sup>2</sup> puts his patients on a test diet composed of 40 grm. of carbohydrate, 60 of protein, 110 of fat, with alcohol, to give 1,700 calories. This is carried out with rest in bed for one week. If the urine is free from sugar and acetone, the amount of carbohydrate is slowly increased until sugar appears in the urine. He finds that patients who can tolerate at least 40 grm. of carbohydrate require no insulin. If the total is less than 40 grm. he attempts to reach this amount by reduction in fat or by an alternating diet. He sometimes gives one to three vegetable days. On such days he allows clear soup, vegetables, four eggs, small quantities of alcohol, black coffee, 25 grm. of protein and 170 of fat. This may be followed by three oatmeal days. He gives 150 grm. of oatmeal, 50 to 150 of fat, black coffee, clear soup and wine, and perhaps eggs or vegetables. After this the patient goes back to vegetable days. Now comes a day of strict diet in which there are no carbohydrates; then a starvation day on which are allowed vegetables with less than 60 grm. of fat, soup, coffee and one or two eggs. He believes that it is often wise to have a vegetable day or one of strict diet each week. The alternating diet has the advantage of the two foodstuff diet, without its disadvantages.

Porges<sup>3</sup> in a book published in 1929 suggests that a liver well charged with glycogen will bring about an increased tolerance to carbohydrates. He believes that if the pancreas is made to work at full capacity its ability to produce insulin is increased. If the pancreas is rested its power diminishes. His diet consists of 100 to 200 grm. of carbohydrate, 80 grm. of protein and about 50 grm. of fat daily. He recommends that glycosuria be disregarded in the early stages of the treatment. Insulin is given when necessary.

K. von Noorden, Vienna,<sup>4</sup> comments on various diets now in use. He believes that the system of two foodstuffs has proved valuable. He claims that his own diet, vegetable, fat, and eggs, with 40 to 50 grm. of protein only on single days, or for one to two weeks, relieves metabolism and increases the tolerance. It is a mistake to continue for any great length of time the diet of Petren, because of its monotony. Falta's diet of flour and fruit, he says, is too poor in protein and too rich in fats for permanent use. The diet of Porges is suitable for almost every type of diabetes. With a diet poor in fat, carbohydrate tolerance is from 80 to 200 per cent more than on a high fat diet. It is unnecessary to restrict the protein. Porges suggested this in 1926.

Blotner and Murphy<sup>5</sup> have shown that liver which was previously believed to be unsuitable for diabetes because of its glycogen content is really of value in this disease. They suggest that liver contains a blood sugar reducing substance, 180 grm. of liver being equal to from 10 to 15 units of insulin in reducing the blood sugar and maintaining it at a low level. This has to be given daily for from three to five times a week. They also found that the liver fractions that are effective in the treatment of pernicious anemia have no effect on the blood sugar in diabetics.

Geyelin and Mackie<sup>6</sup> have advocated increased carbohydrates in the treatment of diabetic children.

Sansum, Blatherwick and Bowden<sup>7</sup> suggest a diet in which there is diminishing fat and increased carbohydrate. They have certain diets the first of which is their "acidosis diet" composed of 90 grm. of oatmeal (dry weight), 300 c.c. of skimmed milk and 1,000 c.c. of fruit juice. The oatmeal and skimmed milk are divided into three meals. The fruit juice is given both with and between meals. When the patient is free from acidosis, the remaining diets are increased in the following order.

ROUTINE DIET FORMULAS

No.	Diet	Carbo- hydrate	Protein	Fat	Calories
1.	Acidosis.....	257	28	12	1,248
2.	1,000 calories....	95	48	49	1,013
3.	1,500 calories....	146	69	71	1,499
4.	2,000 calories....	202	79	97	1,997
5.	2,200 calories....	217	93	107	2,203
6.	2,500 calories....	245	100	124	2,496
7.	3,000 calories....	301	116	150	3,018

Ample insulin is given but no attempt is made to render the patient sugar free on the acidosis diet. The patient is de-sugared on diet No. 2. The amount of fat is greater than that used by Porges and Aldersberg, and considerable amounts of insulin are given. They believe that the most striking advantage gained by the use of these carbohydrate diets has been in the improvement in the physical and mental activity. These new diets, in which there are at least two parts of carbohydrate to one part of fat, give such a margin of safety that acidosis can hardly occur, even when there are large amounts of sugar in the urine. The diets are more palatable because of the increased amount of carbohydrate. The amounts of insulin have to be increased on these diets. The potato, milk, and fruits eliminate the acid-ash type of acidosis which they believe to be the cause of bloodvessel disease in diabetes.

F. Bertram<sup>8</sup> discusses the various attempts that have been made to increase the effectiveness of insulin or substitutes for it. All attempts to provide a deposit of insulin in the tissues by means of solutions of olive oil, gum arabic, etc. have failed. Fornet's pills, containing bile-acid with insulin, have proved ineffectual. Guanidine



derivatives, such as synthalin, which was discovered by Frank, Nothman and Wagner, have been the most successful. Galegin was introduced by Reinlein and Singer. von Noorden has recently recommended glukhormont. This latter, however, contains synthalin. Recent investigation has shown that synthalin stimulates an increased secretion of insulin by vagus action. It works best in mild cases, that is, where the pancreas is able to function. In moderately severe cases and in very severe cases it may have little or no effect. It gives dyspepsia and has been shown to be a "cell toxin". This action is found only after large doses. Glukhormont is weaker in action, probably because of the small amount of synthalin present. Galegin has also a milder effect than synthalin. von Noorden believes that in mild cases small doses might be administered by the mouth with safety and with the assurance of some benefit. Protein therapy does not seem to have given much promise. He mentions the so-called "anhydrous" sugars. Here the intention is to supply carbohydrates which are readily combustible. After ingestion the blood sugar does not rise so high as after taking dextrose, while the energy equivalent is the same. There are a large number of these

anhydrous sugars on the market, such as "glukhosan," "laevo," "salabrise," "saccharosan." Such preparations have a tendency to produce diarrhoea if much is taken.

Undoubtedly the greatest advance of the last few years has been in the reduction of fat, and the consequent gain in carbohydrate tolerance, especially in children. When the reason for this is discovered further control of diabetes by diet will follow.

## REFERENCES

1. JANSSEN, B., *Jahresb. für ärztl. Fortbild.* 19: 15, 1928.
2. BAUER, R., *Wien. klin. Wchnschr.* 42: 782, June 6, 1929.
3. PORGES, O., UND ADLERSBERG, D., *Die Behandlung Der Zuckerkrankheit mit Fettarmer Kost*, Urban and Schwarzenberg, 1929.
4. VON NOORDEN, C., *Therap. d. Gegenw.* 70: 241, June, 1929.
5. BLOTNER, H., AND MURPHY, W. P., *J. Am. M. Ass.* 92: 1332, April 20, 1929.
6. GEYELIN, H. R., AND MACKIE, T. T., *N. Y. State J. Med.* 29: 677, June, 1929.
7. SANSUM, W. D., BLATHERWICK, N. R., AND BOWDEN, R., *J. Am. M. Ass.* 86: 178, Jan. 16, 1926.
8. BERTRAM, F., *Klin. Wchnschr.* 7: 1209, 1928.

## PREVENTION OF DEFORMITIES IN CHRONIC ARTHRITIS.

—Loring T. Swaim and John G. Kuhns assert that when spinal arthritis has been found or is strongly suspected, the most effective measure for preventing deformities is rest in correct positions. This means complete rest in bed, for a matter of weeks. Any extensive experience with this disease makes it evident that no patient can become cured of the malady and continue at his work at the same time. Recumbency is indicated to afford rest to the patient, to give an opportunity to raise his resistance, to allay pain and muscle spasm and, above all, to prevent the forward deformity. This recumbent rest must be so arranged that positions are not assumed which induce the spinal and thoracic deformity described. The patient's bed should not sag in the middle; there should be but one small pillow under the head; often no pillow is better. It is less fatiguing and less likely to cause deformity to have the patient sit in a straight-backed chair than to have him bolstered up in bed with its certain flexion of the dorsal spine. At intervals of about one-half hour several times during the day a pillow should be placed under the dorsal spine and the hands should be placed under the head. This pulls the thoracic cage into the fullest possible expansion. When deformity has already occurred, complete recumbency for a period of weeks is required. Heat applied to the spine in any form gives comfort and decreases muscle spasm. The patient is placed in a hyperextended position at short intervals during the day to mobilize the spine, to increase chest expansion and later to correct deformity. The patient is first taught to lie with a pillow under the knees to flatten the lumbar spine. No pillow is permitted under the head at these times, thus making for full extension of the cervical and dorsal spine. When this becomes comfortable, a pillow is placed under the back at the apex of the bowing for short periods; later this may be replaced by a sand bag or half shell plaster cast, in which the patient may lie for short periods or even all night. A more vigorous measure is to have the patient lie on a firm hair mattress, which is gradually raised by means of inch boards placed from day to day under the apex of the deforming spinal curve. Not all deformities yield readily to such treatment but all will

improve to an encouraging degree; sometimes, however, only after months of persistent treatment. When such therapy cannot be followed and stiffness increases, the spine should be allowed to ankylose only in the best functional position: with the chest in full expansion and the spine in full extension with no increase in the normal curves. Exercises play an important part in the treatment of spinal arthritis. These are given several times daily in the recumbent position. As the patient becomes more comfortable and stronger, he is given sitting or standing exercises. They should be designed to mobilize the stiffened spine, to improve chest expansion, and to strengthen the atonic abdominal wall and the weakened spinal muscles. These exercises should be continued until the patient is well. With the disappearance of muscle spasm and improvement in spinal and abdominal musculature, the patient may again become ambulatory. At this stage the patient should be provided with apparatus which will help prevent deformity and yet not restrict the chest. Torticollis, a rotation of the head due to cervical arthritis, is one of the most unsightly as well as obstinate deformities that involve the head. When the head is pulled to one side by the protective muscle spasm, it should be put at complete rest with the neck in the normal erect position and the face looking straight forward. This position should be held by a posterior plaster shell or sand bags. Heat applied to the back of the neck and traction of from 3 to 10 pounds (1.4 to 4.5 Kg.) on a head sling often help relieve the muscle spasm. As the muscle spasm decreases, the position of the head should be changed several times a day and held by pillows or sandbags if necessary. If stiffness increases in spite of treatment, the neck should be permitted to become stiff only in a good position, with the head facing directly forward and balanced well on the torso for the upright position. Involvement of the temporomandibular joints occurs in a large number of arthritic cases. A certain amount of correction can be secured by the use of soft wood wedges between the upper and lower teeth. Various operative procedures have been devised for securing motion when the joint is ankylosed.—*J. Am. M. Ass.* 94: 1123, April 12, 1930.



## Editorial

### THE ETIOLOGY OF DISSEMINATED SCLEROSIS

FRESH interest in the etiology of disseminated sclerosis has been awakened by the recent work of Miss Kathleen Chevassut, which appears in *The Lancet* of March 15, 1930.

After a historical survey of the various theories as to its pathological and clinical nature, Miss Chevassut rightly assumes that, whether the subsequent pathological processes be of an organismal or toxic nature, one specific cause is obvious, and to this end has initiated her investigations with a study of the spinal fluid.

Certain investigations upon the colloidal gold reaction of the spinal fluid in cases of disseminated sclerosis led her to the conclusion that this reaction was specific and, in all probability, related to the causal factor in the disease. This observation was supplemented by the additional one that the liver in cases of disseminated sclerosis is deficient in antitoxic and metabolic functions. The consequent assumption that a toxic factor, whether primary or secondary to some etiological agent, exists in this disease led to a further search for this agent, which culminated in the discovery of certain spherical bodies to which is given the name *Spherula insularis*.

By means of a special technique, aided by special microscopic facilities, Miss Chevassut has been able to obtain cultural growths of these spherical bodies (some of which contain granules) from the cerebro-spinal fluids of 176 out of 189 cases of disseminated sclerosis. The assumption that they are living organisms is based on the following observations: Multiplication *in vitro* occurs; subculturing can be effected; sensitivity to hydrogen-ion concentration, temperature, and certain chemical agents is manifest; sugar reactions are induced by actively growing cultures; the granules pass through collodion membranes.

This demonstration necessitated the use of a special culture medium—Hartley's broth—to which human blood serum had been added; it should be noted, these bodies were

not detected in the cerebro-spinal fluid itself.

Subsequent to this discovery, inoculation experiments carried out with the monkey are merely mentioned in an accompanying paper by Sir James Purves-Stewart. Sir James inoculated seven monkeys by the intravenous and cisternal routes, and in one only was a definite pathological result obtained and this is not described as typical of disseminated sclerosis. However, as full particulars of these inoculation experiments are to appear in a subsequent article, it is wise to reserve criticism until such time as this information is available.

Sir James Purves-Stewart, too, has made use of Miss Chevassut's organism in the preparation of a vaccine for therapeutic purposes, and has treated in all 128 cases, 70 of which he considers were under observation long enough to yield suggestive results. His measure of these results is indicated in both clinical and serological improvement—though, as rightly pointed out by Sir James himself, such factors must be carefully weighed in view of the tendency of this disease toward spontaneous improvement. On the whole, his observations as to the therapeutic efficacy of the vaccine do not prove it to be greatly different from that seen in the natural course of the disease. While stress is laid on the changes noted in the colloidal gold and globulin reactions resulting from the treatment, it must be remembered that both these factors fluctuate in relative proportion to spontaneous clinical improvement.

It is strikingly difficult to draw any conclusion from this most important work until all the evidence is at hand. We are not unmindful of the spirochætal theory, announced some years ago by European workers, nor of the oblivion into which it has fallen, and yet this by no means nullifies the effort of these investigators. The excellence of the work must necessarily depend upon further investigation and verification by others who will no doubt extend the field of this

most important announcement. One would like to be assured that the spherical bodies, which remind one of the globoid bodies found in acute poliomyelitis, are not the result of some chemical or biological interaction between the spinal fluid and the particular culture medium employed, as the very constancy of this finding in more than 90 per cent of the cases suggests such a possibility. Again, one might wish more conformity between the organism and the results of animal inoculation than appears in the

original report, though it is only fair to await the forthcoming evidence in this respect.

The interest of the medical world in this work cannot be overstated, and it is to be hoped that subsequent investigation will concede to *Spherula insularis* a place amongst the accepted micro-organismal causes of disease. Should this be so, we need not be concerned with apparent difficulties at present, as then all else will be added.

F. H. MACKAY.

### OVERDOSAGE WITH VITAMINS

THE difference between the poisonous and the healing action of a chemical compound is merely quantitative. If a drug is not pharmacologically inert then a sufficiently large dose will prove toxic. Small dosage may restore to normal a disturbed metabolism; larger dosage may upset the equilibrium in another direction.

It is to be expected that vitamins, powerful agents whose actions we still only guess at from the sequences of their deficiencies, should act as dangerous poisons when administered in dosage greatly in excess of that to which the organism is habituated. Until recently it has not been possible to test such expectation. The available preparations of most of the vitamins still contain but slight concentrations of these compounds. Only vitamins A and D can as yet be considered.

A few years ago Takahashi and his co-workers claimed that they had obtained vitamin A in pure crystalline form. They named the preparation "biosterin," and found that in dosage 400 times that required for normal growth it proved rapidly fatal to rats. That the preparation is toxic in such high dosage can be accepted as a fact. In view of Drummond's researches on this vitamin we may doubt whether biosterin is pure vitamin A; the toxicity of biosterin may well be due to some impurity mixed with the vitamin.

That vitamin D can act as a poison is now well established. Too great a dosage leads to toxic results, which fortunately can be easily recognized at an early stage. This vitamin is produced, as is now well known,

when ergosterol is subjected to irradiation with ultra-violet light. This happens whether pure crystalline ergosterol is treated, or ergosterol present in traces in food or in the tissues of the living animal. It is also well recognised that the vitamin itself is destroyed by further irradiation, material of a resinous character resulting which exhibits no vitamin activity.

The clinical efficiency of irradiated ergosterol in rickets was largely established as the result of researches by Windaus, Rosenheim, Hess and György. Since their work many commercial preparations have become available, marketed under different names, and of widely differing potencies. Unfortunately, many of these have been employed in dosage based upon the weight relations of a product of uncertain purity. In a recent statement Steenbock considered that at maximum such preparations do not contain more than 10 per cent of the pure vitamin. If even such relatively dilute products can produce very toxic effects, much more can be expected with purer preparations and such preparations may soon be available. Reerink and Van Wyk<sup>1</sup> have shown that irradiation with wave lengths greater than 275  $\mu$  produces only vitamin D (while shorter wave lengths produce other, inactive, products) and such irradiation only decomposes the vitamin slowly, so that they have obtained a crystalline product which is 60 per cent pure vitamin. Their clinical collaborators, using a 50 per cent product, obtain perfect healing

1. REERINK, E. H., AND VAN WYK, A., *Biochem. J.* 23: 1294, 1929.

results in children with a daily dose of 0.04 mg., one hundred times smaller than that in frequent use with the ordinary, less pure, preparations.

Between 1922 and 1927 several observers called attention to the apparently injurious effects of excessive doses of cod liver oil, then the best source of the vitamin. Since the latter year a steady stream of papers has appeared dealing with the toxic results of overdosage with irradiated ergosterol. Pfannenstiel<sup>2</sup> showed that excessive doses of "vigantol" produced toxic symptoms and death in normal rabbits, such death being preceded by a well-defined series of events, loss of appetite, emaciation, rough fur, and sometimes marked diarrhoea. Animals rendered experimentally rachitic through abnormal diet were somewhat more resistant. He reported that long continued clinical use of "vigantol" sometimes led to sudden loss of appetite and weight, and, less frequently, to severe diarrhoea.

Kreitmaar and Moll<sup>3</sup> obtained similar results with a number of different species. With mice, rats, guinea-pigs, rabbits, cats, and dogs, a sufficiently large dosage invariably produced loss of weight and death, the time before death being for any species somewhat proportional to the dosage, and the degree of loss of weight depending on the rapidity with which death ensued. Their results indicate a definite variability in the response by different species. Rabbits, cats, and dogs seem definitely less resistant than rats and mice, whilst guinea-pigs exhibit still greater resistance, and hens and axolotls do not appear to be affected. Such variability obviously illustrates a possible danger through calculating clinical dosage from experiments with such animals. These authors noted that animals dead from overdosage with the vitamin showed rich chalk deposits in predisposed sites—the vessel walls especially, which were often changed to stiff tubes. Such effects were produced in from eight to fourteen days. They considered that their results indicated that the customary therapeutic doses were not dangerous, since from comparison with cats man would

require more than 100 mg. daily of the preparation used to induce toxic symptoms.

Many observers have confirmed the production of toxic results; a few have drawn contrary conclusions from their own experiments. Such negative results were undoubtedly due to the use of different preparations of slighter activity. Thus Heubner<sup>4</sup> found that for corresponding doses the preparation "präformin" was less toxic than "vigantol," but also that in therapeutic dose it was less beneficial. Scheunert and Schieblich<sup>5</sup> found that "vigantol", "radiostol", and "präformin" were all toxic in sufficiently large dosage, while there existed a parallelism between their toxic and therapeutically effective doses. The general results of all such work indicate that the toxicity is attributable to the vitamin itself and not to impurities contaminating it.

Hess and Lewis<sup>6</sup> showed that irradiated ergosterol would produce plasma hypercalcaemia, and further that this could be produced in rachitic children by doses (5 mg. per day) which at the time of their work were considered safe for use; in two of their cases such hypercalcaemia was associated with loss of weight, vomiting, and marked diarrhoea. They considered that the excess of vitamin had induced a hyperparathyroidism.

Gyorgy,<sup>7</sup> in 1929, pointed out that while the original clinical dose for infants, 2 to 4 mg. per day, was based on the effects of the original irradiated ergosterol preparations, better preparations had become available, so that the dosage ought not to exceed 1 mg. per day, except in cases of manifest tetany or severe rickets, while prophylactic doses should not exceed 0.5 mg. per day. He stresses the first characteristic toxic symptoms in children as loss of appetite, cessation of gain of weight, even loss of weight and diarrhoea. He finds that there is no constant kidney damage, but hypercalcaemia may occur. He considers that it is absolutely possible to separate the therapeutic and toxic doses.

The facts at present available however suggest, although they may be misleading

2. PFANNENSTIEL, W., *Münch. med. Wchnschr.* 75: 1113, 1928.

3. KREITMAAR, H., AND MOLL, T., *Münch. med. Wchnschr.* 75: 637, 1928.

4. HEUBNER, W., *Klin. Wchnschr.* 8: 407, 1929.

5. SCHEUNERT, A., AND SCHIEBLICH, M., *Klin. Wchnschr.* 8: 983, 1929.

6. HESS, A. F., AND LEWIS, J. M., *J. Am. M. Ass.* 91: 783, 1928.

7. GYÖRGY, P., *Klin. Wchnschr.* 8: 684, 1929.



through the varying potency of different preparations, that there may be no wide demarcation between the therapeutically desirable and the possibly toxic dose. Further correlation between fresh experimental work and clinical observation is very necessary to establish such demarcation as exists as accurately as possible; and, especially since the work of Reerink and Van Wyk suggests that more and more potent commercial preparations may soon be available, dosage of such preparations by weight is obviously incorrect and dangerous until such time as the exact content of vitamin D in them can be stated. The observations of these scientists indicate that this may indeed be possible by means of measurements of the absorption spectra of such preparations. Until such a method has been standardized and is generally available we have to depend on the biological procedure of McCollum,<sup>8</sup> or some modification of it, standardizing all such preparations in terms of degree of healing power produced in rachitic animals.

It should not be forgotten that there is also evidence that a combination of irradiated foods and irradiation of the individual may possibly lead to too great a concentration of the vitamin in that individual. The dosage question is further rendered more difficult of solution if due attention be paid to the dictum, obviously true, recently enunciated

by Steenbock<sup>9</sup>—No fixed requirement of the vitamin can be stated; the amount required depends on such factors as lack of balance between calcium and phosphorus, rapidity of growth of the individual, and so on, and must be settled in any particular case by the judgment of the physician. Some assistance is afforded him by the strong existing evidence that young rachitic animals (including children) exhibit greater resistance to the development of untoward results.

It is perhaps doubtful whether any advantage is truly to be gained at present by insisting on standard names which may lead to false security. It is essential, however, that all preparations containing irradiated ergosterol should state that fact, and that the vitamin dosage should be expressed in units—biologically determined—whose value is understood by the physician so that he can guard the dosage. This necessity in no way detracts from the fact that irradiated ergosterol is the best source of vitamin D and, as Hess<sup>10</sup> remarks, that it is specific for rickets, tetany, and osteomalacia.

It is to be expected that when other vitamins have been concentrated to the same high degree similar questions will arise in connection with their employment in high degree of purity.

A. T. CAMERON

8. MCCOLLUM, E. V., SIMMONDS, N., SHIPLEY, P. G., AND PARK, E. A., *J. Biol. Chem.* 51: 41, 1922.

9. STEENBOCK, H., *J. Am. M. Ass.* 94: 531, 1930.

10. HESS, A., LEWIS, J. M., AND RIVKIN, H., *J. Am. M. Ass.* 93: 661, 1929.

## RESEARCH IN MEDICINE

IN the *British Medical Journal* of March 15th there appeared an article by Sir Thomas Lewis on "Research in Medicine: Its Position and Its Needs". There is probably no one at the present time in British Medicine who is better qualified to express an opinion on this subject than Sir Thomas. The many years which he has devoted to the intensive investigation of cardiovascular diseases would in itself render his opinion of the greatest value, but this reason is enhanced by the brilliant results which have crowned his efforts.

Sir Thomas quite rightly draws a distinct difference between what he has called "clinical science" and "diagnosis and care of

patients". Some commentators would appear to think that he has gone too far in advocating that special groups of cases should be placed under the care of research workers and that the question of diagnosis and possible treatment might be relegated to a position of secondary importance. It would be interesting to have the comments of those who have been engaged in what Sir Thomas calls clinical science and who have contributed towards the real understanding of disease processes in man. What Sir Thomas states concerning the position of the relative importance of the diagnostician in practice is unfortunately quite true, but this emphasis on



the importance of diagnosis in practice has undoubtedly done a great deal of injury to rational therapeutics, as intelligent treatment can only be carried out when the physiological disturbances consequent upon any disease are thoroughly known. The teaching of medicine too long has laboured under the handicap of labels. The time is long overdue when those who are engaged in teaching should give to the student more than mere diagnostic training. They should inculcate, so far as is known, an understanding of the physiological disturbances which occur during life.

In North America the importance of clinical science is well reflected in the enormous sums of money which have been spent in the immediate past on the development of departments of medicine analogous to the departments of physiology, biochemistry, and anatomy. The wards of the hospitals are, if one pleases so to view them, the experimental laboratories of the department. It has been intimated that patients would be loath to enter such institutions; quite the contrary has been the case. Their waiting lists are numerous, and those institutions which pursue clinical science in the best sense of the word have no difficulty in procuring subjects for their investigations.

It has long been held that medicine is an art. This is quite true if one restricts the practice of medicine to the compilation of

personal experience and observation. As Sir Thomas points out, this has served a great purpose in building up a certain fabric for diagnosis. It is not a sufficiently sound basis however for a science, and there undoubtedly is room for science in clinical work. Those who have advanced science in any direction have done so through a habit of thought more than through the place where they have worked. The showing of cause and effect and the tracing of each concrete step can be done in medicine as well as in physiology. What are required are the time, the facilities, and above all well-trained men who will view their medical problems with a critical outlook and will be content to advance step by step, slowly but surely, towards the elucidation of the problem which they have set themselves to solve. No short-cuts are permissible; no unwarranted conclusions are allowable; and the quality of the work must be of the most painstaking exactness.

British medicine owes Sir Thomas a great debt already, but it owes him a still further debt for his fair and clear plea that it should embark upon the development of clinical science. He has shown by personal example how this can be done. He has pointed the way for its further development, and if his plea bears fruit future generations in British Medicine will always be his debtor.

J. C. MEAKINS.

#### THE SPREAD OF TULARÆMIA.

**T**ULARÆMIA, a disease the importance of which is gradually becoming more fully appreciated, has already been discussed in our *Journal*<sup>1</sup>. If it is not actually becoming more common, it is at least certain that it is more often recognized, and that it is being met with over a wide range of territory. Until 1924, when only some fifteen cases had been reported in the United States and a few in Japan, tularæmia was regarded as a clinical curiosity, but within the last five years 1076 cases have been reported in Russia and more than 1,000 cases in the United States. Recently the disease has made its appearance in Norway, three cases being studied and reported upon, and others

have been met with<sup>2</sup>. Tularæmia has, so far, been reported in every state of the Union except Maine, New Hampshire, Vermont, Connecticut, and Delaware. In an editorial (*loc. cit.*) the opinion was expressed, in view of the extensive distribution of the disease throughout many of the United States bordering on Canada, that tularæmia would, sooner or later, make its appearance in Canada. That prediction has come true. On page 678 of this issue will be found the report of a case in a human being, from the practice of Dr. H. D. L. Hudson, of Timmins, Ontario. The diagnosis was made by Dr. McNabb, Director of the Department of the

1. *Canad. M. Ass. J.* 20: 409, April 1929.

2. THYOTTA, T., *Avhandl. Videnskaps-Akad. i Oslo, I, Mat-Naturv., Klasse*, 1: 1, 1930.

Health Laboratories in Ontario, on the strength of a positive specific agglutination test. As the blood of the patient in question had been sent in for a Widal test bacteriological culture was not possible, and the specific microorganism was not isolated. Nevertheless, there can be no reasonable doubt as to the true nature of the case. It will be noted that the agglutination test was negative with *B. typhosus*, *B. paratyphosus*, *Br. abortus*, and *Br. melitensis*. For the past year Dr. McNabb and his associates have been testing, as a routine all samples of blood sent to them for the Widal test not only for typhoid and paratyphoid fevers but also for undulant fever and tularæmia. This wise procedure has resulted in the discovery of an additional disease for Canada.

Tularæmia is primarily a disease of rodents and when it has occurred in man the infection has always been traced to contact with these animals. Wild rabbits, hares, ground squirrels and water rats are known to harbour the disease. What is known as "lemming fever" in man, an affection attributed by the laity to contamination of water with dead lemmings, is not improbably tularæmia. A considerable variety of wild and domestic mammals, including deer, sheep, and human beings, and even birds, are known to be susceptible. There is some evidence, too, not quite conclusive, that cattle should be included.

The specific germ is transmitted from the host either by direct contact with the abraded skin or by the bite of a blood-sucking insect vector, usually a tick. Parker and Dade<sup>3</sup> have brought forward weighty evidence to show that the heavy losses among sheep in eastern Montana and southern Idaho have been due to tularæmia communicated by ticks. Parker and Spencer<sup>4</sup> have shown, also, that the tick *Dermacentor andersoni* is able to transmit the infective agent through its eggs to the next generation. It would seem likely, therefore at least so far as Nevada is concerned, that the wild rabbit and this particular species of tick may be regarded as the permanent sources of the infection.

In the United States those who have studied the disease have recognized four more or less well-defined types of tularæmia—ulcero-glandular, oculo-glandular, glandular, and typhoidal—through the more recent investigations made in Russia would seem to indicate that this classification is not entirely satisfactory. The case reported now in Canada belongs to the typhoidal or septicæmic group.

The common involvement of the lymph nodes in tularæmia and the rôle played by biting insects in transmitting the infection will, of course, bring to mind the analogous disease—bubonic plague. There are some differences, however. Plague, in man is a severe affection; tularæmia is usually mild. In the latter, the mortality is estimated at three per cent. An attack of the one disease does not protect against the other. McCoy and Chapin immunized a guinea pig against plague and then inoculated it with tularæmia; the animal died with typical signs of tularæmia. The occasional cross agglutination reactions that have been found between tularæmia and Malta and abortus fevers might suggest a relationship here, but have occurred only with low dilutions and probably have no significance in this regard. Inasmuch as bubonic plague and tularæmia may coexist in the same district it is obvious that the differential diagnosis is of great importance. Some thirty years ago a number of cases of plague (?) were reported in California, attributed to ground squirrels, and thought to have been introduced from Japan. In the light of our fuller knowledge it is probable that these were cases of tularæmia. They caused some trepidation at the time, naturally.

As it has been shown in Russia, recently, that tularæmia is endemic among the rodents in certain districts, even though there may be no human cases, it is evident that the disease has a definite importance from the standpoint of public health. And, further, in view of the fact that the human cases of tularæmia have been met with among hunters, butchers, and those handling the carcasses of fur-bearing animals, and among laboratory workers, tularæmia might also be properly included among the occupational diseases.

A. G. N.

3. PARKER, R. R., AND DADE, J., *J. Am. Vet. M. Ass.* 75: 173, Aug. 1929.

4. PARKER, R. R., AND SPENCER, R. R., *Pub. Health Rep.* 41: 1403, July 9, 1926.

## Editorial Comments

### LEAD POISONING IN QUEENSLAND

It has for many years been recognized by the Australian medical profession that lead poisoning among children is more common in the State of Queensland than in any other part of Australia, and perhaps in any other part of the world. This was first clearly proved by Dr. J. L. Gibson in 1904.<sup>1</sup> The patients showed the typical wrist drop, colic, neuroretinitis, and ocular palsies, and their urine and faeces were found to contain minute quantities of lead. It was in suggesting the source of the lead, however, that Dr. Gibson's ingenuity was particularly evident. After much consideration he came to the conclusion that the lead was derived from the powder of the paint used on the sun-scorched wooden houses. It is said that Queensland is unique in possessing the largest settled white population of any tropical area, and one characteristic of its dwellings is that they are of wood and are raised on posts well above the ground, on account of the ever-active white ant. The verandahs of these houses are therefore high up off the ground, and here it is that the children spend much of their time, especially in the hottest part of the day. The paint on this woodwork soon becomes cracked and powdered in the baking tropical sun, and there is plenty of opportunity for the children to get it on to their hands and into their mouths. Nail-biting was found in a large percentage of those showing plumbism, and it was also discovered that a favourite pastime was the licking of drops of rain off the railings. It was also further noted that the greatest number of cases of lead poisoning occurred during the hottest part of the year, during which the children would be under the shelter of the verandahs most of the day.

After these points had been brought out, efforts were made to prohibit the use of paint containing lead on outside woodwork, but the paint manufacturers seem to have proved refractory, and the legislature has shown no great interest in the question. The subject has however been reopened by the investigations of Drs. Croll and Nye,<sup>2</sup> who have called attention to the excessive mortality from nephritis, both of the acute and chronic type, amongst young people in Queensland. The mortality from this cause is higher than that found in any of the other Australian States, and there is obviously ground for their contention that there is some special factor in Queensland to account for it. This factor is considered to be the widespread plumbism spoken of above. Dr. Nye has in-

quired into the circumstances of a series of 80 patients treated, either in hospital or in private practice during 1927 and 1928, for chronic nephritis. Of these, 42 said that they had had no previous illness; 14 said that they had been treated for lead poisoning. No other single etiological factor occurred more than five times in the series, and further inquiry amongst the other patients showed that a large proportion had spent their childhood in Queensland in houses of the type mentioned. Another point of significance was that the mortality from nephritis in the young is almost twice as great among the town dwellers of Queensland, the children in these cases being confined to the houses more than in the country parts.

Efforts are being made to deal with the question by means of a special commission. Whatever is done, however, will be guided largely by the knowledge already gained by these most admirable investigations. H.E.M.

### DR. RICHARD MILLS PEARCE

Dr. Richard Mills Pearce, Director in the Department of Medical Education and of Medical Science in the Rockefeller Foundation, died on February 16, 1930, of heart disease, at the early age of 55 years. A very sympathetic account of his life and activities is given by Dr. Simon Flexner in a recent issue of *Science*.<sup>\*</sup> Dr. Pearce was well known to many Canadians. Canadian medical schools have had many visits from him, and his visits have always been associated with much valuable advice and have left behind them pleasant memories. From Dr. Flexner's essay, we abstract the following interesting items.

A Canadian by birth, Dr. Pearce received his medical training at Harvard Medical School, from which he graduated at the age of twenty-three years. Professor W. T. Councilman was at that time at the head of the Department of Pathology, and, influenced by him, Dr. Pearce held for some time the position of Instructor under him. In 1900 he went to the University of Pennsylvania, at first as Demonstrator in Pathology; later on he became Assistant Professor in that department. Five years later he accepted the position of Professor of Pathology in Bellevue Hospital Medical College, but shortly afterwards returned to the University of Pennsylvania to fill the newly founded Chair of Research, thus becoming the first professor in a chair of medical research in the United States.

During the World War he gave his services to the American Red Cross; but later on, under the National Research Council, he was chosen to act as chairman of the Division of Medicine and the

1. *Med. J. Austral.*, p. 327, Mar. 8, 1930.

2. *Med. J. Austral.*, p. 144, Aug. 3, 1929.

\* March 28, 1929, p. 331.



Related Sciences. As soon as the war was ended he resumed his temporarily interrupted research work at the University of Pennsylvania. Dr. Flexner in his essay bears witness to his steady devotion and to the ability manifested in this work in the course of which his contributions to our knowledge were important and of permanent interest.

In 1920 Dr. Pearce became associated with the Rockefeller Foundation and, as director of the division of Medical Education, carried out medical surveys in South America and in other countries. He paid a long visit to China in order to assist in the organization of the Peiping Union Medical College. In the course of his investigations Dr. Pearce's constructive mind found out ways of modifying and improving existing conditions, and the warmth with which his suggestions were welcomed by the several institutions he inspected was indicated by the promptness with which his suggestions were put into practice. It is not too much to say that Dr. Pearce's keen insight, high purpose, and always tactful approach, made his visits to educational institutions important events in their history.

Dr. Pearce had a very winning personality which brought him many friends and admirers. He threw his whole heart into all his activities, and at the same time was ever conscious of the important position which he occupied because of the declared purpose of the Rockefeller Foundation to contribute toward the improvement of medical teaching and research on a world-wide scale. Possessed as Dr. Pearce was of clear perception and rare courage, he placed behind him his own strong inclinations to carry on research work, and devoted his efforts to serve a wider purpose and accomplish greater good, by making possible higher levels of education, and by providing better means of research for countless students in time to come in the many institutions to which financial aid was brought through his efforts. Dr. Flexner closes his sympathetic obituary by stating that in the death of Dr. Pearce the profession and scientists generally lose one who had been a notable teacher and investigator, and a keen supporter of medical education and research. It is certain that the benefits of his effective labours will continue to be widely felt for very many years. A. D. B.

#### PROF. WILLIAM HENRY WELCH

April the eighth was the eightieth birthday of Prof. William Henry Welch, called appropriately the "Dean of American medicine." The *Canadian Medical Association Journal* joins with the many, not only in the United States and Canada but throughout the world, who have extended congratulations to him on attaining this ripe old age after a lifetime of active and beneficent service. Fitting ceremonies were held in honour of Dr. Welch in London, Paris, Berlin,

Leipzig, Tokio, and Pekin, as well as in Baltimore, Cincinnati, New York, New Haven, and Washington. The focal point of the celebration was Washington where a public meeting was held, which was addressed by President Hoover, the proceedings being broadcast throughout the world by special arrangement.

Professor Welch graduated from Yale University in 1870 and four years later from the College of Physicians and Surgeons in New York. He then studied abroad, his attention being directed from the first to pathology. His research on thrombosis is still a *locus classicus* on this important subject. On his return from Europe Dr. Welch began to teach pathology, in 1877, at the Bellevue Hospital Medical College, and on the foundation of the Johns Hopkins Medical School became associated with Osler, Halstead, and Kelly in building up that renowned institution. He has remained in Baltimore ever since, and in that time has established and maintained many contacts, it may be remarked, with Canadian medical men.

Dr. Welch, at the beginning of his career, saw the birth of the modern science of bacteriology, in the epoch-making work of Pasteur, and throughout his long life has seen its development and applied its discoveries to the advancement of preventive medicine and public health. Through his great gifts as a teacher and his personal influence he has done more, probably, than any other one man to guide the course of Medicine on this continent. Dr. Welch's work as a student and teacher has been so well summarized by Dr. Simon Flexner, his associate for eight years, that we cannot do better than quote his words.

"He conducted investigations of his own, launched others on productive themes, and saw to it that the invaluable pathological specimens from the surgeons and gynaecologists were made use of to advance knowledge and train a generation of special pathologists in these important fields. He lectured on special and general subjects in pathology and bacteriology in a manner so learned and fascinating as to produce impressions not only immediately stimulating to his auditors in high degree but of enduring permanence. The suggestiveness of these lectures led frequently to new undertakings in research. Moreover, the autopsies he performed, his demonstrations of gross pathological specimens and his teachings at the microscope stand out as unsurpassable models."

Dr. Welch, on the establishment of the Faculty of Hygiene and Public Health at Johns Hopkins, became its Dean, and when he retired four years ago, far from ceasing active work, was appointed Professor of the History of Medicine and was largely instrumental in establishing this new department on a broad basis and in erecting the magnificent library



building that was inaugurated last October. President Hoover's address disclosed a friendship of years with Dr. Welch, and described him as "our greatest statesman in the field of public health, for he not only represents the spirit of true science, but constantly sees and seizes opportunities to direct its results into service of human kind." "Dr. Welch is loved because of his radiant nature, his constant readiness to serve others, and his charming habit of under-rating his own achievement." We trust he may long be spared to be a power in the land.

A.G.N.

#### HONOUR TO PROFESSOR A. B. MACALLUM

The many friends of Professor Macallum, and Canadian scientists generally, will join with the *Journal* in expressing to him their great satisfaction at the honour that has recently been conferred on him by the Royal Society of Canada. Dr. Macallum has been awarded the Flavelle Medal for conspicuous achievement in science.

Professor Macallum is one of the outstanding figures in bio-chemistry in the world, and has been Professor of Bio-Chemistry at both Toronto and McGill Universities, retiring from the latter position in 1928. He was President of the Royal Society of Canada (1916-17), and administrative chairman of the Advisory Council for Scientific and Industrial Research of Canada (1917-20). He is a Fellow of the Royal Society of London, and holds degrees from Dublin, Yale, Toronto, Aberdeen and McGill Universities. In his retirement Professor Macallum is still active in scientific matters, and not infrequently contributes editorials and articles to this *Journal* on topics connected with his special line of study which are of great value and are much appreciated. The Flavelle Medal is well bestowed.

A.G.N.

#### HONOUR TO SIR ANDREW MACPHAIL, KT., M.D., M.R.C.S.

Sir Andrew Macphail, Professor of the History of Medicine in McGill University, has also been honoured by the Royal Society of Canada, which has awarded him the Lorne Pierce Medal for outstanding merit in Canadian literature.

Sir Andrew is widely known as a trenchant writer, one who is always informative and stimulating. He is the author, among other works, of *Essays in Puritanism*, *Essays in Politics*, *Essays in Fallacy*, *The Book of Sorrow*, the official History of The Canadian Forces in the Great War, and *Three Persons*, a translation of Hémon's *Maria Chapdelaine*, and was Editor of the *University Magazine* during its all too short career. Sir Andrew was also Editor of the *Canadian Medical Association Journal* until the outbreak of the Great War.

Again, an honour well bestowed!

A.G.N.

#### SOME RECENT ELECTIONS TO FELLOWSHIP IN THE ROYAL SOCIETY OF CANADA

Two recent elections to Fellowship in the Royal Society of Canada will be of interest to our readers, those of Professor Boris P. Babkin and Professor Hardolph Wasteneys.

Professor Babkin received his doctorate in Medicine from the Military Medical Academy of St. Petersburg in 1904. From 1902 to 1912 he acted as assistant to the renowned Prof. I. P. Pavlov; then became Professor of Physiology in the University of Odessa in 1915. From 1922 to 1924 Dr. Babkin worked in London under the Medical Research Council, and in 1924 became Professor of Physiology at Dalhousie University, and, later, in 1928, Research Professor of Physiology at McGill University.

Professor Wasteneys is well-known in Canada and abroad and has been connected with the Department of Biochemistry of Toronto University since 1918. In 1929 he was appointed to the Chair of Biochemistry in Toronto, taking the place of Dr. Andrew Hunter, who left to become Professor of Physiological Chemistry at Glasgow.

Both elections will confer strength on Section V of the Royal Society of Canada and will be widely approved.

A.G.N.

#### J. GEORGE ADAMI—A MEMOIR

We would draw special attention to an attractive little volume that has recently come from the press. It is entitled "J. George Adami—A Memoir," and is from the gifted pen of Mrs. Adami, who has been assisted in her labour of love by certain friends and colleagues of her late husband in England, Canada, and the United States. The book gives a very readable account of one who, because of his "humanness" and eminence in science will not readily pass from the memory of those who knew him.

Adami came to Canada just at the time when it was being realized that a new era was dawning—one in which Medicine was to be transformed from an art into a science; in fact, he was brought to McGill University for the very purpose of establishing the new conception. How thoroughly he succeeded can be read in the work of his pupils and in the changed spirit that came over the teaching of Medicine. Adami brought his subject into close relationship with other branches of science, and, moreover, constantly applied its principles to the problems of medical practice. The story of his life will appeal to all who knew him as well as to those who are interested in the development of scientific medicine in this country.

A.G.N.

## Special Articles

### PUERPERAL INFECTIONS

AN EXTRAMURAL LECTURE

(Continued)\*

BY JAMES R. GOODALL, O.B.E.,  
B.A., M.D., D.Sc.

*Clinical Professor of Obstetrics and Gynaecology,  
McGill University, Montreal*

I wish next to devote a few remarks to another type of infection which, for want of a better term, I have described as cumulative. I mean by this a low grade infection, which goes on developing insidiously over a long period, without any pronounced symptoms, the patient frequently up and about, doing her duties but not feeling well and, suddenly, she develops an hæmorrhagic state. She bleeds from the mucous membranes of the nose, mouth, uterus or intestines, and into the skeletal muscles, and, finally, purpura develops. The fatal result is, usually, not long delayed. In my experience it has occurred most frequently after self-induced abortion. A few cases will make the subject more forceful.

#### CASE 1

A case I saw in the out-patients' department was an abortion self-induced with a piece of stove-pipe wire. The woman had aborted three weeks previously. Her legs were black to the knees with purpura. There had been two nose-bleeds previously. Death occurred a few hours after admission.

#### CASE 2

I was called in consultation, to give a prognosis, in a case of insanity (puerperal). There was a history of self-induced abortion twenty-two days previously; curettage by her physician two weeks before my visit. The patient was out of bed five days later and doing her light house work. She suddenly developed a psychosis and, when I saw her, I recognized the condition as one of sepsis, with purpuric spots developing rapidly and, later, a general hæmorrhagic state. Death occurred eight hours after consultation.

#### CASE 3

I was called to the medical wards to see a recent admission; the medical diagnosis was suspected ectopic gestation. I elicited the history of an induced abortion one month previously. The patient had been in service since, was not feeling well but was able to carry on. She then suddenly collapsed and was sent to hospital. When seen, she was bleeding from all the mucous membranes and purpuric patches developed later. Death followed in a few hours after admission.

I could add several other such cases, but the above suffice to illustrate the type of infection—

slow and cumulative, until suddenly the blood changes or blood-vessel changes are such that diapedesis becomes general.

#### EXTENSION BY CONTINUITY OF SURFACE

The common gonococcal infection is the classic of this type. The average gonococcal infection is a mucosal and submucosal one. It thrives on columnar surfaces, and once the cervix is infected, the infection has a continuity of columnar mucosal surface to the fimbriated end of the tubes. Usually a wife, when infected by a supposedly cured husband, is either sterile or she has but one child followed by sterility, and that one pregnancy usually follows quickly after marriage before the gonococcal infection has reached and closed the cornual ends of the tubes. The incidence of post-partum re-lighting of a gonococcal infection is small, because of the above stated facts regarding single pregnancies and sterility. The exceptions to this are found in those rare cases in which the disease remains localized to the cervix.

When a gonococcal infection relights after labour, it is practically always an acute salpingo-oophoritis, associated with a great deal of pain owing to the associated peritonitis. The condition usually manifests itself in one lower quadrant first, and in the other a short time later. Later, a definite mass becomes palpable in the lower abdomen and plastic peritonitis may be quite extensive.

#### DIAGNOSIS

Eighty per cent of puerperal infections are devoid of symptoms. Every case of fever in the puerperium should be considered puerperal in origin until proved to the contrary. A slight continuous fever of from 99° to 100°, lasting several consecutive days indicates a local cervical infection, or a thrombophlebitis or, more rarely, a very mild lymphatic broad-ligament extension, and should be looked upon and treated as such until the diagnosis is confirmed, if confirmed it may be, for, in a large percentage of cases, the diagnosis will ever remain doubtful.

A delayed involution is usually the sequel to a cervical infection, except in the cases due to general debility, rapidly repeated pregnancies, or chronic systemic disease. In all silent febrile infections of unknown origin one must never forget to catheterize the patient and eliminate or confirm pyelitis. About 50 per cent of post-partum pyelitis are also silent infections. In pelvic infections, as soon as the peritoneum or perinæum is involved in the inflammatory process the condition manifests itself by pain. Extensive disease may exist in the silent area

\* See *Canad. M. Ass. J.* 22: 558, April, 1930.

without giving any hint by symptoms of its presence. Mixed infections in the puerperium are common and are usually easily detected. Thrombophlebitic cases are all silent infections, and are diagnosed only by their complications, embolism and metastatic thrombophlebitis. Endocardial involvement secondary to puerperal infection is rare.

In prolonged sustained high fever in the puerperal state watch the pleural bases carefully for secondary involvement from small infarcts.

Acute appendicitis is frequently indistinguishable clinically from acute right lateral puerperal peritonitis, and each year claims a quota of perforated appendices and deaths due to the association in point of time with the puerperal state.

#### PROGNOSIS

In summing up a case of puerperal sepsis, with a view to determining its outcome, there are three factors of the utmost importance. By far the most eloquent sign is the facies of the patient. A normal facies, with its placid outlook upon life, will outweigh any untoward combination of untoward symptoms. The local condition fades almost into insignificance in the presence of a normal facies. *Per contra*, an anxious expression, unnatural alertness, wide palpebral clefts, flushed cheeks, and fine fibrillar contractions bespeak a severe type, and caution against unwarranted optimism.

The next most important sign is the pulse rate. Increased pulse rate is a local indication of the stimulation of toxæmia. A normal pulse rate argues a low toxicity. Now, the pulse rate is merely a local and appreciable result of a general toxic state, but the toxic excitation is general, though not so easily appreciated. This excitation is followed, in due course, by a corresponding depression. Therefore, a high pulse rate, in the absence of cardiac or thyroid disease, bespeaks a highly toxic state and a guarded prognosis; whereas a slow pulse rate is a good prognostic sign.

Temperature, on the other hand, is reactionary and, therefore, salutary. Temperature is an expression of "a comeback," of a reaction to a poison, and within certain limits denotes work to the patient's credit. These three prognostic signs may be combined in all forms and degrees, and the prognosis varies accordingly.

The most favourable prognostic signs in infection are a normal facies, a pulse of eighty or eighty-four, a temperature anywhere above normal and yet below 105°. Abnormal facies, a rapid pulse (120), and a high fever, call for a more guarded prognosis. An ashen grey facies, with a falling temperature and a rising pulse rate, denotes a very bad prognosis. Of course, there are special symptoms which

enter in special cases, but do not alter the general trend, as outlined above.

#### TREATMENT

The treatment of puerperal infections may be divided into *preventive, general, surgical and special treatments*.

Prevention, of course, will always outweigh cure in importance. It is not my purpose to stress perfection in technique, but one point I would like to emphasize and that is that severe puerperal infections, with few exceptions, are introductions from sources outside the patient. Hence, the importance of avoiding contaminating contacts with purulent and infectious material and, of further protection of the patient by gloves and mask. It is my opinion that we do not stress sufficiently the absolute necessity of abstinence from sexual intercourse. Three cases of very severe sepsis in one month, causing one death, were traceable directly to intercourse shortly before the onset of premature labour.

When in contact with a case of severe exsanguination, or with one in which there has been much instrumentation or manipulation, the best preventive against infection lies in transfusion. Transfusion, to accomplish its best results, should anticipate infection. It is of very little value, and often harmful, when the infection is in full bloom.

Posturing the patient is useful. As soon after labour as convenient she should be taught to lie prone, with her limbs apart, for ten minutes twice daily, and taught, while so disposed, to breathe deeply. Water drinking should be encouraged. Its value can hardly be over estimated.

General treatment is of the utmost importance. Under this heading is included all that appertains to nursing in its best form. No detail should be too small to be attended to, and everything should be done to promote the patient's comfort. Under this heading I would stress *symptomatic* treatment, for the relief of any distressing symptom. Ninety per cent of cases will recover spontaneously under good nursing. Patients should be turned from side to side every two or three hours, to prevent bed sores and hypostasis. Ice should be applied to relieve acute peritoneal pain. Narcotics may be administered with good effect. Sleep must be promoted by somnifacients or narcotics. Headache relieved by ice-bag to the head and the ingestion of large quantities of water to lessen the toxæmia, of which the headache is an expression. An easily digested diet, in small doses and at frequent intervals is indicated.

The development of special symptoms must be met by special means, to outline which would prolong unduly this article. Stimulants are not only not required but are harmful in the early days of a severe infection. Toxins



are stimulating. The rapid heart action, the rapid breathing and muscular twitchings are sufficient evidence of this. Reserve stimulants of all kinds until the systems begin to flag.

Surgical treatment in the acute puerperal infections has very little scope. It is restricted to packing the uterus for septic uterine hemorrhage or to the evacuation of pus. Surgery should not be attempted too early, to evacuate an inflammatory deposit in the pelvis or elsewhere. Wait until the abscess becomes easily accessible, and fluctuation is elicited in the pelvis; this will be either through the posterior vaginal fornix, or above Poupart's ligament or over the crest of the ilium posteriorly and, very occasionally, in the upper inner thigh. There is only one valid reason for invading a septic uterus surgically, and that is for the control of (septic) hemorrhage. I do not hesitate to state that a septic woman's chances of recovery are diminished by one-half by invasion of the uterine cavity during the febrile state.

Six weeks after a subacute infection of the cervix it will be found that the residuum is a chronic endocervicitis, and probably a degree of subinvolution as a result of it.

The application of the small nasal electric cauterizer to the cervical canal cures the endocervicitis and hastens the retarded involution. This cauterization of the cervix, with Wappler's rheostat and electric twisted nasal cauterizer point, is painless, prompt and effective. It can be done in the office without anaesthesia, and the patient gets up off the examining table and goes about her daily duties. A weak formaline douche, under low pressure, may be used (not exceeding one and a half feet of elevation), once daily to keep the parts clean until healing is complete. The cervical discharge is copious for the first week after cauterization; it then diminishes and disappears completely in two to three weeks.

#### SPECIAL TREATMENT

The number of special preparations that have enjoyed a reputation, for a short period, is legion. One may categorize these by stating that all preparations of antiseptics to be used intravenously have passed into the limbo of oblivion. Vaccines and anti-toxines are now seldom used. Their questionable virtue lies not in their specific action but rather in their protein content. The colloidal suspensions of precious metals are of very debatable value. If they contain any value at all it is also due to the colloidal reaction and not to the metal. So far the treatment is chiefly negative. But we have a very potent remedy for good in a protein reaction in puerperal fever. The mildest protein reaction is that induced by the subcutaneous injection of human fresh whole blood. I have seen a very large number of such blood injections and have yet to see a single unfavourable result. The treatment consists in abstracting 10 c.c. of fresh blood from any

healthy donor regardless of the group, and immediately injecting the same subcutaneously into the patient. There is a time limit in which this must be done, *i.e.*, it must be injected before it has time to clot in the syringe. The injection should be repeated once daily.

A more severe protein reaction may be obtained by the injection of from 5 to 10 c.c. of boiled skimmed milk. This is generally given with a moderately long needle intramuscularly. Occasionally reactions occur after such an injection, usually there is generalized pain and so-called rheumatic joint pains. The very occasional syncopal attack, it is said, is due to too much fat content in the milk.

My procedure is use whole blood in the very severe infections and milk or aolan (a lactalbumin prepared in phials by Parke Davis & Company) in the subacute or chronic infections.

In blood transfusions we have one of the greatest prophylactic agents against infections. Their value is inestimable in cases where sepsis is anticipated, such as in cases of probable contamination, severe traumatism, much manipulation, or great depletion by blood loss. It is strongly urged in such cases to do a transfusion, where facilities permit, to avoid the incidence of infection. Doubtless some cases will be needlessly transfused, but equally doubtless they will be benefited by the procedure. It is urged also for its economic value, for it will greatly shorten hospitalization as well as save lives. It is particularly recommended in placenta prævia, owing to the great blood loss and the high incidence of infection. The best time to transfuse is before infection has developed.

When infection has declared itself, the situation is not so clear. Generally speaking, transfusions are beneficial in all infections; the earlier in the infection that the transfusion treatment is begun, the more does this fact apply. There is less benefit when the infection is of some duration, and specially in septicæmia cases, though what better can be done is a very debatable point. I have found severe reactions follow transfusions in very severe infections of long duration, in many cases of such severity as to place the case in a moribund condition in a very short while. Since being in conversation with men of wide experience in New York, whose experience is at variance with mine, I am inclined to think that my untoward experience in this respect was probably due to methods than to individual idiosyncrasy. In my own cases citrated blood was always used, and it may be that the cause lies in this. The matter will require further investigation.

It is generally accepted, I think, that transfusions are indicated in subacute and chronic cases. The period of convalescence is shortened and improvement is often prompt and lasting.

The cause of the benefit that is attendant upon transfusions is a very debatable point.



It is not certain whether it results purely from the protein content, therefore a protein reaction, or whether the cellular elements of the blood are of equal or of greater importance than the plasma. Schools are divided in this respect. The French schools incline to the former belief and use frequently repeated small reactive transfusions of one or two hundred cubic centimetres. Other schools incline to the second theory and use large transfusions of five to seven or eight hundred cubic centimetres, not so frequently repeated. The matter is still *sub judice*.

A final word of encouragement. The outlook in puerperal sepsis is generally favourable. Sustaining treatment with careful amelioration of the symptoms by appropriate therapy—and the abstention from heroics will give the patient the best chances for ultimate recovery. A small percentage of cases receive such a severe flooding of virulent infection that the case is hopeless from the onset. These, to-day, are fortunately very rare. The milder cases are vastly in the ascendant, and the outcome in these cases warrants the highest optimism.

#### SOME IMPRESSIONS OF SANITATION AND PUBLIC HEALTH IN GREAT BRITAIN\*

By T. H. WHITELAW, B.A., M.B.,  
Edmonton

In this paper I shall endeavour to give briefly some impressions gained in regard to public health and sanitation during a recent visit overseas. That medical education and public health endeavours are being generally maintained at a very high standard of excellence and efficiency is the general impression one gets by visiting the various hospitals and centres of medical education. Hospitals there, to a much greater extent than here, appear to derive their financial support from endowments, bequests, and gratuities donated by wealthy firms or individuals, rather than from patients' fees or public taxation. A subscription list, headed by some scion of nobility or even royalty, will usually receive a surprising degree of support from the community concerned, and produce astonishing results. Possibly a high sense of duty to the community, or what is commonly known as "noblesse oblige," is the motivating force behind this generosity. When in Edinburgh, I learned that the Royal Infirmary, a very large hospital, is entirely free to all patients, and my sense of the hospitality and friendliness of its people to a stranger in a

strange land was greatly added to when an official of the hospital assured me that if I were taken ill or received an injury and were removed to the infirmary while in Edinburgh, I would be presented with no account on leaving. It was admitted, however, that a voluntary contribution on my part would be accepted.

The modernization of old hospitals, by reconstruction, replacement, or additions, is very noticeable in London itself, and nothing but the very best in architecture, material, workmanship and planning, to obtain the greatest degree of efficiency, is considered, apparently regardless of the cost of construction. At the fever hospital (called here the isolation hospital) near Kings' Cross, the individual wards are constructed inside of glass plate, only the outer wall being of brick, and were entered only from the verandah or covered outside corridor. The patients suffering from different diseases in adjacent wards were in many cases attended by the same nurse, who naturally had to be thoroughly trained in medical asepsis. Cross infection, I was informed by the medical superintendent, rarely occurred, but, he stated that, as has been our experience here, chicken-pox gave the greatest difficulty in regard to the control of cross infection.

The new and magnificent building, erected in the vicinity of the University Hospital, for the teaching of hygiene and tropical diseases, was opened by the Prince of Wales in July last, and the occasion of his arrival and departure was as usual marked by the congregating of a large crowd of spectators, indicating the tremendous popularity of His Royal Highness with all classes. Students trained at this institution become qualified to fill important positions as health officials in parts of the British Empire situated within the tropical zone.

State medicine, as carried out under the panel system, apparently has not lowered the efficiency or damped the enthusiasm of the panel physician, who from the individual cases I met in country districts appeared to be doing very effective and satisfactory work with a good income assured. While the panel physician does not need to worry over collecting the main portion of his income, he does complain over the details of practice he is compelled to record daily, as being somewhat onerous and exacting.

In reference to general sanitation in large cities like London, one can only express the utmost admiration. Despite the millions of people who walk the streets and the thousands who visit and loiter about the many beautiful and extensive parks, no litter of paper or other refuse is noticeable anywhere, indicating a perfect system of collecting waste material and cleaning streets. An obedience to, and perfect compliance with, sanitary laws and regulations

\* Read at the annual meeting of the Alberta Association of Public Health Officials, Edmonton, November 18th, 1929.

seems to be inculcated or inborn in the populace generally. In public parks I observed even little children under school age picking up scraps of paper or leavings from their lunch baskets and depositing them in receptacles provided for the purpose, or handing them to the caretaker who was raking the sward close by. In the Liverpool trams the following notice is prominently displayed "In order to aid in the prevention of consumption, passengers are earnestly requested to abstain from the dangerous and objectionable habit of spitting." Contrast this polite request which appeals to the sense and reason with the peremptory notice we see so often here, "\$50.00 fine for spitting in this street car or on the sidewalk," and possibly the reason will become apparent why there is a greater respect for sanitary laws in England than in Canada and the United States.

The public comfort stations, maintained for both sexes at all main intersections, are well advertised by signs indicating location, are on the surface artistically decorated with flower beds and shrubs in many cases, and in the rooms below to which access is given by stairways, one finds the most scrupulous cleanliness and absence of odours maintained at all times by the necessary attendant. The same satisfactory and clean conditions are found on all trains, even when travelling third class, as the great majority do. I regret that such a eulogy cannot be made of similar places in Canada, even where such have been provided. Greater provision for such public conveniences is desirable in most of our cities, not excepting Edmonton and Calgary. One criticism which might be made of sanitary matters in London is the continuance of some of the old drinking fountains of ornate, chaste, and artistic design, donated by some distinguished citizen of former time, including brass cups, attached by chains, from which it is still possible to drink in obedience to the injunction "Ho everyone that

thirsteth come ye to the waters." Whether many avail themselves of these large and heavy drinking cups like inverted bells, I am unable to say, but I did not observe that they were getting any considerable public patronage. It is probable that they are tolerated by health authorities out of respect for tradition.

No placarding of houses by infectious disease cards is done in London, or in Britain generally, I believe. Physicians are paid a small fee for each report of a case of infectious disease. The superintendent of the Fever Hospital in London assured me, in answer to my queries in regard to this matter, that concealment of infectious disease by the householder was rare, as practically every man, woman and child in the neighbourhood considers himself or herself a sanitary or health official and would promptly report any delinquent in this respect.

Public water supplies are in general wholesome, safe, and free from any sediment. The hilly nature of the country and the existence of so many pure water lakes or rivers at higher levels, provide the means of obtaining excellent and pure water by gravity systems for practically all large cities and many smaller ones. Glasgow, as an example, gets its water supply from Loch Katrine, 45 miles away. In country districts, many of the houses have water piped from streams or small bodies of water situated in the surrounding hills.

That London is one of the healthiest cities of the world, in spite of its immensity, is due to what I have indicated as existing, a wholesome respect for sanitary and health laws, an efficient health and medical service, and the excellence of its system of garbage and refuse collection, street-cleaning, etc., which is indicated by the absence of street dust or litter of any kind in any objectionable degree. Such satisfactory conditions are partly due, no doubt, to the fact that practically all streets and lanes are paved and the facilities for disposal in a seaport city are easily obtained.

---

THE NEW PLACENTAL HORMONE.—At the time of going to press we have received, too late for publication in this issue, a paper from Prof. J. B. Collip giving the method of preparation of his placental extract. This will appear in the June number.

RUPTURE OF THE SUBCLAVIAN ARTERY.—K. Hanf-Dressler (*Arch. f. klin. Chir.* 154: 785, March, 1929) records a curious case in a young man of twenty-two years, devoted to athletics, where, after exercising with

an "expander" against a weight of 50 kilos, sudden pain was felt in the right shoulder and chest. For the next few days there was pain and a feeling of illness. The patient, after admission to the hospital, suddenly became worse, and a hæmatoma developed in the throat. Death then followed. At autopsy it was found that the subclavian artery had ruptured, and that there was also a tear, a span long, in the right side of the diaphragm near the attachment to the ribs. Microscopic examination of the walls of the arteries showed them to be normal.

## Men and Books

NEWS NOTES ILLUSTRATIVE OF THE  
PRACTICE OF MEDICINE IN UPPER  
CANADA, IN THE EARLY YEARS  
OF THE NINETEENTH CENTURY\*

By THOMAS GIBSON, M.B., C.M., (EDIN.)

## Kingston

June 4th, 1811. "Centre St., Canada West. Doctor Rogers, Army Surgeon, and member of the Royal College, London, may be consulted free of expense, every Saturday, from eleven o'clock in the morning till four in the afternoon, by such persons whose situation renders them unable to defray the charge of medical advice."

June 13th, 1815. "Broke away from the house of Dr. A. F. Reid, in the town of Kingston, a dark brown horse."

Nov. 25th, 1815. James McNab writes extolling the skill of Mr. Anthony Marshall, M.R.C.S., in saving the writer's life by an amputation after a compound fracture of the leg.

Nov. 28th, 1815. "Mr. Marshall, surgeon, has taken Mr. Earl's house where all calls in his line will be immediately attended to. Mr. Marshall has for sale, besides a general line of drugs imported by himself, the following patent medicines, viz.—British Oil, Anderson's Pills, Godfrey's Cordial, Huxham's Tincture of Bark, Cheltenham Salts, Opodeldoc, Paregoric, Jesuit's Drops, Turlington's Balsam of Life, etc."

November 16th, 1815. (Letter to the Editor, signed W.)

"These essence vendors are *hostes humani generis*. And what shall we say of the physician? Are his expenses and troubles, his talents, studies and the martyrdom of his health, all nothing? In the lower Province apothecaries and midwives must be licensed, but here these marauding anthropophagi, these sordid menials of Moloch, roam at large, 'frightening virtue from its slumbers by the spectacle of its own ruin.'

".....One of these ourang-outangs sold recently some pills, which, upon decomposition, appeared to be principally Gamboge of a very acrid and drastic substance, unfit to be taken in any quantity.

".....An unfortunate female accoucheur, from ignorance or trepidation, separated the funis from the placenta, leaving the latter within the patient's uterus, and the catastrophe closed only a few days ago, by the patient's

death.....The vigilance of magistrates, the contempt of the public, the scorn of all good men must root out these pretenders and make them feel if they cannot see."

November 25th, 1815. Reply to the above by "A subscriber," Ernesttown.

".....Lastly, the female accoucheurs are threatened, without whose aid we who live in the back settlements, twenty or thirty miles from a legal learned accoucheur, would be in a very distressing condition. I would, therefore, beg of W., when he sounds his tocsin, to spare those useful old women until a sufficient number of competent accoucheurs can be obtained, philanthropic enough to settle in the woods and be content with the scanty pittance that the poor can afford them.

"I am, sir, without any profession but husbandry, your humble servant, A Subscriber."

December 2nd, 1815. (From a female accoucheur, Kingston.)

".....For Subscriber's able defence of the female accoucheur, from the tremendous attacks of W., we must be grateful. I was afraid that W's Ciceronian eloquence in this tremendous crisis, would shake the Province from one end to the other, and that we who earn our scanty pittance by aiding others into this world, and but for whom, perhaps, this learned son of Aesculapius would never have seen the light, should be completely deprived of future sustenance."

October 3rd, 1815. Messrs. Carlisle and Markham announce that they "have entered into a co-partnership in the practice of Physic and Surgery. All calls in the line of their profession will be punctually attended to. They have also on hand a large assortment of drugs, and medicines, paints, oils, dye-woods, etc."

April 6th, 1816. "Mr. Marshall, M.R.C.S., who has removed from Mr. Earl's house to Mr. Pat. Smyth's stone house, Water St., has recently received from Montreal a consignment of fresh vaccine or cow-pox matter."

May 25th, 1816. "Veritas," of Adolphustown, writes deploring the laxity of the enforcement of medical legislation in the upper Province.

".....Not only our fortunes but our lives are in the hands of these despicable quacks. How does it happen that an act of the session of 1815 is not proceeded upon? Those quack spies who are daily inundating the Province, those men (most brutal in their manners, for the most part, and in their conduct immoral in the highest degree) go from house to house, like pedlars, dealing out their poisonous pills and herbs, and holding out to the gaping ignorant the advantages of a republican government.

"During the last session of the peace I had

\* Collected from files of the "Kingston Gazette" in the Douglas Library, Queen's University, Kingston.



occasion to be in Kingston, and though I lodged in a private house, I had occasion to call one morning at a tavern. While speaking to the landlady, in the bar, in came a doctor and called for a gill of brandy. While drinking it he put a great many questions to her about the health of her customers, and finally said he would leave some fever powders, as it was likely the country people would be getting drunk and would require medicine.

"The lady thanked him, and said that if she wanted any medical aid she knew where to send for it. To conclude, Mr. Editor, the consequences of the present system will be, in the first place, to prevent native merit entering the profession; secondly, those few respectable and regularly educated men whom we have among us will either leave the Province, or get a miserable subsistence if they remain; and lastly, the Province will be in some degree revolutionized by these emissaries of a licentious republic."

*May 31st, 1817.* "Mr. Scott, late Surgeon of H.M.S. Montreal, on Lake Ontario, and M.R.C.S. of Dublin, formerly of the Lying-in Hospital Dublin, acquaints inhabitants of Kingston and its vicinity, that he resides near to the South gate, in part of the house occupied by Mr. Richardson, and intends practising the several branches of his profession in future.

"Every attention will be paid to patients, and on the most reasonable terms. A small proportion of medicines of genuine quality to be had."

*December 9th, 1817.* "Joseph Scott, Surgeon etc. acquaints the public that he has taken into partnership H. McGee, Member of the Dublin and Edinburgh Colleges of Surgeons, son of Dr. McGee, physician, of Belfast, Ireland."

*February 3rd, 1818.* "Surgeons Scott and McGee, having a number of patients in and near the village of Ernest-town, and knowing the difficulty some of them have in being able to visit their surgery in Kingston, have determined, for the better accommodating them, that either Surgeon Scott or Surgeon McGee shall visit Ernest-town village every Friday in each week, at Forward's Hotel, where will be given every kind of advice and medicine requisite, at Kingston prices."

The last issue of the "Kingston Gazette" appeared on the last Tuesday in December 1818. It was replaced by the "Kingston Chronicle," under Messrs. Pringle and Macaulay, vice Stephen Miles, printer.

In the issue of January 1st, 1819, the election of the following group of doctors, under the recent act to regulate the practice of Physic and Surgery within the Province, is announced:—Drs. James Macauley (Simcoe's doctor) late Deputy-Inspector of Hospitals, Christopher Widmer, late Surgeon to His Majesty's Forces, Wm. Lyons, Robert Kerr, Wm. Warren Baldwin, and Grant Powell.

*April 16th, 1819.* "Dr. Z. Smalley begs leave respectfully to inform the inhabitants of King-

ston and its vicinity that he has established himself as a physician, surgeon and apothecary. From his having received a regular medical education, and from his experience in the different branches of his profession, he is induced to believe that he will be able to do justice to all whose misfortunes may render them under the necessity of soliciting medical aid.

"Also, drugs, paints, linseed, oils, dye-stuffs, glass, nails, paper-hangings, garden seeds, books and stationery."

*June 25th, 1819.* "Surgeon Boyd, of His Majesty's Navy, begs leave to announce to the inhabitants of Kingston that he has taken the store lately occupied by Dr. Scott in Store St. (now Princess) where he intends practising in the different branches of his profession.

"Having made midwifery a particular part of his study, he hopes for the patronage of families in the above line.

"N.B.—Advice gratis to the poor between the hours of ten and eleven o'clock in the morning."

HARRY GOODSIR MACKID, M.D.,  
L.R.C.P. & S. (Edin.), F.A.C.S.

By J. N. GUNN, D.S.O., M.B., M.R.C.S. (Eng.)

#### Calgary

Thirteen years have passed since the death of Dr. H. G. Mackid and still Calgary misses him. His memory is ever fresh to those who had the good fortune to be classed among his friends. In physique and manner he was a striking personality, a big man, a handsome man, a man the warmth of whose smile and handshake is a living memory.

Dr. Mackid was at his best in his home. Friendship and hospitality were his religion. He always opened the door himself for his friends and was always genuinely loath to see them depart. An evening by his fireside passed all too quickly. Conversation on current events or scientific subjects was always punctuated by interesting anecdotes of which he had an infinite variety, and he was a past master in the art of story telling. He had a unique personality, warm hearted and generous, and a wonderful faculty for making friends, in a sick room his well-groomed person, his buoyant spirit, his quiet dignity, and his medical knowledge bred an atmosphere of confidence and cheer.

Dr. Mackid was born in Goderich, Ontario, in 1858, his father being a presbyterian minister from Caithness, Scotland. He graduated in arts and medicine from Toronto in 1879, took a long post-graduate course in Edinburgh and Vienna, practised a few years in Lucknow and Seaforth, Ontario, then came west in 1889.

Dr. Mackid was a character. How much of this was formed by his early pioneer environment and how much derived from his Celtic stock it is impossible to say. He arrived in Calgary



at an impressionable age, and he certainly left his impress on the life of the city.

He was a glutton for knowledge, and had the happy faculty of absorbing it from others, and making use of it to the advantage of his patients, and of the medical profession at large. It was greatly due to his untiring energy that the first real hospital in Calgary was built on Twelfth Avenue East, and later he was largely instrumental in stimulating public interest to the point of building the present General Hospital, while to Mrs. Mackid belongs a large share of the credit for the furnishing of these hospitals. She was one of the most energetic members of the Women's Hospital Aid Society, and Calgary owes her a debt of gratitude. With the active Board of Governors, the able assistance of the Women's Hospital Aid Society, and a civic pride, the General Hospital was better managed, better equipped, and gave better service for less cost than it has ever done since.

For many years in Calgary the names "C.P.R." and "Dr. Mackid" were almost synonymous. He was early appointed local surgeon to that great system and grew up with it. He gave them his best and they, with a soul possessed by few large corporations, appreciated his great work and appointed him Chief Surgeon of the Western Division of the Canadian Pacific Railway, and, on his death, appointed his son, Dr. Stewart Mackid, to carry on his work.

Many medical men working for a large Company either detail the Company work to their assistants, or they, themselves, vegetate. Dr. Mackid did neither. He was a great student, a good diagnostician, and an expert surgeon. Besides the company work he had a large private practice and he gave them both his best. He travelled often and far in search of knowledge, and was always willing to sit at the feet of a Gamaliel wherever he found one.

In 1911 he received the highest honour a medical man can receive at the hands of the profession; he was elected President of the Canadian Medical Association. The meeting was held in Edmonton and those who attended it will always remember it. He was the driving force; his spirit pervaded the whole meeting. His hospitality knew no bounds, and all agreed it was the most successful meeting ever held in the West.

For some years he had been suffering from the then dread malady, diabetes, and, while still keeping an active interest in his work, he was gradually compelled to live a less strenuous life. But when war broke out and his son, Dr. Stewart Mackid, enlisted and went overseas, he, like many others, went back into the harness. The strain was too much and on August 16th, 1916, Calgary lost a citizen whom she can never replace.

TREATMENT OF MUMPS WITH THE SERUM OF CONVALESCENTS.—P. Iversen (*Ugeskrift for Læger*, February 13, 1930, p. 167) observed an epidemic of mumps in the winter of 1928-29 in the infectious division of a military hospital. As it soon became evident that the incidence of orchitis was very high, he administered the serum of convalescents to a certain number of the patients in the hope that this complication of mumps would be reduced in frequency. The Danish State Serum Institute prepared a mixed serum from convalescents, from the tenth to the twenty-second day of the disease, nearly all of them having been afebrile for about a week. In order that changes in the character of the epidemic as it proceeded should not vitiate the conclusions drawn from this experiment, only alternate patients were thus treated, every other patient being given an intramuscular injection of 40 c.cm. of the serum. In uncomplicated cases the patients were kept in bed for ten days after the fall of the temperature to normal. The patients who already suffered from orchitis on admission to hospital received no serum, and were classed in a group by themselves. Altogether 203 patients were admitted to hospital. Of the 75 admitted without orchitis before this treatment was started (Group I) 24, or 32 per cent, developed orchitis, which

in three cases was bilateral. Group II included the 56 patients admitted to hospital after the adoption of this treatment, but not given it. Group III included the 56 patients given the serum. In Group II there were 16 patients (29 per cent) who developed orchitis, which was bilateral in 3 cases. In Group III there were 11 patients (20 per cent) who developed orchitis, which was bilateral in one case. Of the 15 patients in Group IV who had not been treated in bed from the outset and who were already suffering from orchitis on admission to hospital, and who received no serum, as many as 6 had bilateral orchitis. On the other hand, among the 51 patients who developed orchitis in hospital there were only 7 in whom this complication was bilateral. The author attempts to draw no definite conclusion from his figures as to the influence, if any, of treatment with the serum of convalescents on the incidence of orchitis in mumps; but he emphasizes as of practical importance the following observation: whereas as many as 6 out of the 15 patients admitted to hospital already suffering from orchitis presented this complication on both sides, only 7 out of 51 patients developing orchitis after admission suffered from this complication on both sides. He infers from these observations that every adult male who develops mumps should be treated by rest in bed.—*Abs. in Brit. M. J.*

## Association Notes

### BRITISH AND CANADIAN MEDICAL ASSOCIATIONS

Annual Meeting: Winnipeg, August, 1930

### TENTATIVE PROGRAM

#### SECTION OF MEDICINE

##### First Day.

"The importance to the practice of medicine of filtrable viruses."

*Opener:* S. P. Bedson, M.Sc., M.D., London.

*Follower:* (Not yet selected.)

##### Second Day.

"Functional derangements of the colon."

*Opener:* E. I. Spriggs, M.D., F.R.C.P., Ruthin Castle, North Wales.

*Follower:* E. E. Cleaver, M.D., Toronto.

##### Third Day.

"Poliomyelitis." (Conjoint meeting with Section of Mental Diseases and Neurology.)

*Opener:* To be selected in England.

*Follower:* H. B. Cushing, M.D., Montreal.

#### SECTION OF SURGERY

##### First Day.

"Surgery in the sympathetic nervous system."

(Opener and followers being arranged in England. We have, at present, no definite confirmation of any final selection.)

##### Second Day.

"The scope of thoracic surgery."

*Opener:* E. W. Archibald, B.A., M.D., Montreal.

*Followers:* Tudor Edwards, F.R.C.S., London.  
W. L. Mann, M.D., C.M., Winnipeg.  
(Phrenicotomy.)

J. D. McEachern, M.D., C.M., Winnipeg.  
(Closed drainage of the thorax.)

##### Third Day.

"Radiation therapy."

(Opener and followers being arranged in British Isles, excepting Douglas Quick, M.D., "Radium and Surgery in Cancer of the Tongue.")

#### SECTION OF OBSTETRICS AND GYNAECOLOGY

##### First Day.

1. "Uses of radium in gynaecology."

(Opener and details being arranged in Great Britain.)

2. "Report on the Marie Curie Clinic."

*Opener:* Lady F. E. Barrett, M.D., B.Sc., London.

*Follower:* W. W. Chipman, M.D., LL.D.,  
F.R.C.S., F.A.C.S., Montreal.

##### Second Day.

1. "The albuminuria of pregnancy and its late results."

*Opener:* J. Bright Banister, M.D., F.R.C.P.,  
F.R.C.S., L.S.A., London.

*Follower:* (Not yet selected.)

2. "The effects of hypertonic saline in the toxæmias of later pregnancy."

*Opener:* Prof. V. J. Harding, M.D., University of Toronto.

*Follower:* H. B. Van Wycke, M.D., Toronto.

##### Third Day.

1. "Demonstration on the Operative Treatment of Prolapse."

T. G. Stevens, M.D., B.S., F.R.C.S., London.

2. "Placental Extract."

Prof. J. B. Collip, M.D., McGill University, Montreal.

3. "Anæsthesia in Labour."

Dame Louise McIlroy, D.B.E., D.Sc., M.D., London.

#### SECTION OF BACTERIOLOGY AND PATHOLOGY, PHYSIOLOGY AND BIO-CHEMISTRY

##### First Day.

"Physiology and pathology of melanin."

*Opener:* J. Ewing, M.D., New York, U.S.A.

*Followers:* Prof. M. J. Stewart, M.B., Ch.B.,  
F.R.C.P., School of Medicine, University of Leeds.  
Prof. James Miller, M.D., D.Sc., Queen's University, Kingston.

**Second Day.**

1. "Immunological problems in septicæmia."  
*Opener:* F. T. Cadham, M.D., Winnipeg.  
*Follower:* (To be selected.)
2. "The parathyroids."  
*Opener:* Prof. J. B. Collip, M.D., McGill University, Montreal.  
*Follower:* (To be selected.)

**Third Day.**

Occasional papers.

1. "Physiology and pathology of the endometrium."  
Prof. J. H. Teacher, M.A., M.D., F.R.F.P.S., Glasgow.
2. "Intra-epithelial growth of carcinoma."  
Prof. R. Muir, Sc.D., M.D., C.M., F.R.C.P., F.R.F.P.S., LL.D., Glasgow.
3. "Pulmonary anthracosis."  
Prof. Lyle Cummins, M.D., B.Ch., LL.D., Cardiff.
4. "The nature of the infection in yellow fever."  
Prof. O. Klotz, M.D., University of Toronto.
5. "Gliomas."  
Prof. Wm. Boyd, M.D., M.R.C.P., University of Manitoba, Winnipeg.
6. "The phosphatase of the blood plasma in bone dystrophies."  
H. D. Kay, M.D., University of Toronto.

**SECTION OF DISEASES OF CHILDREN****First Day.**

Left open on account of discussion on Tuberculosis in Children in Section of Tuberculosis.

**Second Day.**

- "Bacillus coli infections."  
*Opener:* K. D. Wilkinson, O.B.E., M.D., M.R.C.P., Birmingham.  
*Followers:* D. Nabarro, M.D., F.R.C.P., London.  
Bruce Chown, M.D., Winnipeg.

**Third Day.**

1. "Disorders of sleep."  
*Opener:* Hector C. Cameron, M.A., M.D., F.R.C.P., London.  
*Followers:* R. F. Rorke, M.D., Winnipeg.  
A. H. Spohn, M.D., Vancouver.
2. "Artificial sunlight."  
*Opener:* A. Eidinow, M.B., B.S., M.R.C.S., L.R.C.P., London.  
*Followers:* Alan G. Brown, M.B., Toronto.  
Prof. H. B. Cushing, M.D., McGill University, Montreal.

**SECTION OF MENTAL DISEASES  
AND NEUROLOGY****First Day.**

"Abnormal mental and nervous conditions associated with the menopause."

*Conjoint Openers:* G. W. B. James, M.C., M.D., B.S., D.P.M., L.M.S.S.A., London.  
Geo. Riddock, M.D., F.R.C.P., London.

*Followers:* (To be selected.)

**Second Day.**

"Classification of brain tumours and its practical application."

*Opener:* Wilder Penfield, M.D., McGill University, Montreal.

**Third Day.**

"Poliomyelitis." (Conjoint meeting with Section of Medicine.)

**SECTION OF OPHTHALMOLOGY****First Day.**

"The control of trachoma."

*Opener:* M. Stephen Mayou, F.R.C.S., London.

*Follower:* S. Hanford McKee, M.D., Montreal.

**Second Day.**

1. "Incipient cataract."  
*Opener:* L. V. Cargill, F.R.C.S., London.  
*Follower:* Herbert Bell, M.D., Winnipeg.
2. "Colour vision."  
Prof. Frank Allen, M.A., Ph.D., Winnipeg.

**SECTION OF OTOTOLOGY AND LARYNGOLOGY****First Day.**

1. "Early diagnosis of septic infection of the lateral sinus."

*Opener:* F. F. Mencke, C.B.E., F.R.C.S., London.

*Follower:* J. T. Rogers, M.D., Montreal.

2. "Diagnosis of cancer of the larynx."

*Opener:* Lionel Colledge, F.R.C.S., London.

**Second Day.**

"The treatment of paranasal sinus suppuration persisting after operation."

*Opener:* Perry Goldsmith, M.D., Toronto.

*Follower:* A. J. M. Wright, B.S., F.R.C.S., Bristol.

## SECTION OF PUBLIC HEALTH

## Symposium on the Training of Public Health Personnel\*

## First Day.

1. "Undergraduate medical training."  
A. Grant Fleming, M.D., Montreal.
2. "Post-graduate public health training."  
J. G. Fitzgerald, M.D., LL.D., Toronto.
3. "Training of sanitary inspectors."  
Jas. I. Roberts, M.D., Hamilton.

## Second Day.

1. "The laboratory in a scheme of public health."  
Opener being arranged in Great Britain.
2. "Pasteurization."  
A. S. M. MacGregor, O.B.E., M.D., D.P.H.,  
F.R.F.P.S., Glasgow.

## Third Day.

Joint meeting with the Section of Tuberculosis.  
"Tuberculosis and Public Health."

SECTION OF THE HISTORY OF MEDICINE  
AND MEDICAL SOCIOLOGY

## First Day.

1. "Migration within the Empire."  
Opener: T. C. Routley, MD., Toronto.  
Follower:
2. "Migration and Health."
3. "Victoria Bush Nursing Association."  
Sir James Barrett, K.B.E., C.B., C.M.G., M.D.,  
F.R.C.S., Melbourne, Australia.

## Second Day.

1. "The factors influencing health in Canada."  
J. J. Heagerty, M.D., Ottawa.
2. "The life of Sir John Richardson."  
D. A. Stewart, M.D., Ninette.

## SECTION OF TUBERCULOSIS

## First Day.

"Tuberculosis and Children."

## Second Day.

(Conjoint meeting with Section of Surgery.)  
"Tuberculosis and thoracic surgery."  
"Tuberculosis and Surgical Forms of Treatment."

## Third Day.

(Conjoint meeting with Section of Public Health.)  
"Tuberculosis and public health."

## SECTION OF RADIOLOGY

## First Day.

"Physiotherapy."  
E. P. Cumberbatch, M.A., M.R.C.P., D.M.R.E.,  
London.

## Second Day.

1. "X-Ray therapy."  
Opener: J. E. Gendreau, M.D., Montreal University.
2. "Radium in cancer therapy."  
Opener: Douglas Quick, M.D., New York, U.S.A.

## Third Day.

1. "X-Ray diagnosis." (Benign Gastric Tumours.)  
W. H. Dickson, M.D., Toronto.

## SECTION OF ANAESTHESIA

## First Day.

Occasional papers.  
1. "Anaesthesia for operations upon the gravid uterus."  
H. W. Featherstone, M.A., M.D., Birmingham.  
2. "Technique in endotracheal anaesthesia."  
I. W. Magill, M.B., B.Ch., B.A.O., London.  
3. "Avertin."  
F. B. Parsons, BA., M.D., M.R.C.P., Cambridge.

## Second Day.

1. "Sodium amytal."  
Opener: L. G. Zerfas, M.D., Indianapolis, U.S.A.  
Followers: J. S. Lundy, M.D., Rochester, Minn.,  
Miss Mary E. Botsford, M.D., San  
Francisco, Calif., U.S.A.
2. "Post-operative respiratory complications during  
the four-year period."  
D. C. Aikenhead, M.D., Winnipeg.

## Third Day.

Occasional papers.  
1. "Effects of some non-volatile anaesthetics upon the  
rate of secretion and composition of the urine  
and on the function of the liver."  
Wesley Bourne, M.D., M. Bruger, M.D., and  
N. B. Dreyer, M.A. (Oxon.), M.R.C.S., Montreal.  
2. "Anaesthesia in children."  
C. H. Robson, M.D., Toronto.

## SECTION OF ORTHOPAEDICS

## First Day.

1. "The Treatment of Congenital Dislocation of the  
Hip."  
Opener: H. P. H. Galloway, M.D., C.M.,  
F.R.C.S., Winnipeg.

Follower: Being arranged.

2. Occasional papers being arranged.

## Second Day.

1. "Fractures involving the knee joint."  
Opener: R. Watson Jones, B.Sc., F.R.C.S.,  
Liverpool.  
Follower: Being arranged.
2. Occasional papers being arranged.

## Third Day.

Clinical Session being arranged by Winnipeg members



## MANITOBA'S EDUCATIONAL INSTITUTIONS

BY ROSS MITCHELL, M.D.,

*Winnipeg*

Even from the early years of the Red River Settlement attention was given to education. In those early years the churches led the way; later, the state became predominant. In 1819 the first Manitoba school was opened by Father (later Bishop) Provencher, and four years later this school had expanded to become St. Boniface College. In 1820, an Anglican school was established by Rev. John West. This school afterward grew into St. John's College. The Presbyterians entered the educational field in 1851, when Rev. John Black, a minister of the Church of Scotland, took charge of the Selkirk settlers' school at Kildonan, which in time became Manitoba College. Wesley Hall, afterward Wesley College was dedicated in 1868. In 1870 the government of the settlement passed from the hands of the Hudson's Bay Company and the new province of Manitoba was formed. The Provincial Legislature in 1871 formed a Board of Education in two sections, Protestant and Catholic. In 1890, after much agitation, free non-sectarian public schools were established. In some districts bi-lingual teaching is carried on in the primary schools. Both primary and secondary schools and also the University are under the control of the government. The people of the province have always supported the schools loyally.

### THE UNIVERSITY OF MANITOBA

Properly to understand the position of Manitoba's university, one must realize three facts, first, that it originated in 1877, only seven years after the purchase by Canada from the Hudson's Bay Company of that vast district then known as Rupert's Land; secondly, that at the time of its founding the population of Manitoba, including Indians, was less than sixty-five thousand; and lastly, that it arose from the federation of three denominational colleges—St. Boniface, supported by the Roman Catholic Church, St. John's, by the Anglican Church, and Manitoba College, by the Presbyterian Church. Each of these colleges at that time, and for several years, had a hard struggle for existence. Manitoba has never been a wealthy province, and the University has been dependent on the support of the government and students' fees. With three or four notable exceptions, to which reference will be made, there have been no endowments. In determining the constitution of the new university, the University of London was taken as the model, and until 1900 the University of Manitoba was merely an examining and degree-conferring body, all the teaching being done by

the constituent colleges. Yet at the present time the University of Manitoba is the second in Canada in point of numbers of students enrolled,—about two thousand five hundred, and there are 4,733 graduates in arts, theology, medicine, law, engineering, and agriculture.

When one reflects upon the large part that religious and denominational differences played in those early days, as, for example, the Manitoba school question which caused a tremendous upheaval throughout Canada and led to the defeat of a hitherto strongly entrenched federal party, it says much for the breadth of vision and magnanimity of the founders of the university that the progress of the institution has been comparatively so untroubled.

The first degree, that of Bachelor of Arts, was conferred in 1880; the first Master of Arts degree was conferred in 1884. After six years of discussion women students were first admitted to the University College in 1886. In 1883 the Manitoba Medical College was organized, and became affiliated with the University. In the following year a reading course in Law was arranged by the University and the Law Society jointly, and the first LL.B. was obtained in 1886. Wesley College represented the Methodist Church, and was affiliated in 1886.

The question of finances soon obtruded itself on the attention of the University Council. The Act of 1877 provided that a sum not exceeding two hundred and fifty dollars should be placed at the disposal of the Council of the University to meet the expenses incidental to the organization of the same. It did not seem to be realized that the University as constituted would need support from the public treasury beyond organization expenses. Nevertheless, small grants were made annually. In 1887 the financial clause in the University act was amended to read: "A sum not less than two hundred and fifty dollars shall be placed annually at the disposal of the University for the working of the same." This minimum had been granted from 1877 to 1884. It was then gradually increased until in 1890 it reached \$3,500 for the first time. It remained at that level until 1900. Between 1884 and 1889 the University revenue was increased by the assignment to it of the marriage license fees, which were earmarked for it by the Government.

In 1883, Dr. A. K. Isbister, a native of the Red River settlement, bequeathed to the University \$83,000 for a scholarship fund. To this day Isbister Scholarships from this trust fund are being awarded. In 1878 application was made to the Dominion Government for a land grant as an endowment. For seven years this request of the University Council was urged upon the Dominion Government, and finally, in 1885, one hundred and fifty thousand acres of fair average quality were granted. The allocat-

ing of the land took another six years, and it was not until 1898 that the patents were issued, and it was 1900 before any revenue was derived.

In 1899 after prolonged discussion, the university council decided that the University should become a teaching body. Chairs were to be established in Natural Science, Mathematics, and Modern Languages. The Manitoba Government of that day pointed out that the establishment of a university staff carried with it the necessity of choosing a site for the University and the erecting of a permanent building. When approached, however, the Government was unwilling to take any definite action. As a temporary expedient, a property of 6.6 acres, fronting on Broadway, recently conveyed by the Dominion Government to the Province of Manitoba, was placed at the disposal of the University, and on this in 1904 a Science building was erected. The corner stone was laid by the Duke of York, now King George V. The building was made possible by the donation of \$20,000 from Lord Strathcona. The Faculty of Science was organized at that time with six professorships.

The next few years saw the evolution of the University from a federation of denominational colleges to a Provincial institution. In 1907 the University Council asked the Government to appoint a Commission to investigate and report. In 1910 the Commission reported that its members had been unable to agree as to the extent of control of the University by the Province. In spite of delays and disappointments, however, the University was growing, and a distinct step forward was made when a President was appointed, Dr. James Alexander MacLean, who still holds office. The question of a site from 1905 on was, and still continues to be a vexed question. Three sites offered themselves; the small Broadway site, within the city; the Tuxedo site about five miles from the centre of the city, and opposite the city's largest park; and the Agricultural College site about seven miles from the centre of the city, but adjacent to the fine buildings of the Agricultural College, which had been erected by the Provincial Government at a very considerable expense. The Tuxedo Holding Company, in 1905, offered to donate 150 acres to the University on condition that the University should spend a certain amount on improvements and buildings. In 1916, the offer was repeated to hold good for a term of ten years. The University Council voted to accept the offer, but the Government was opposed. In 1913, the Government, which at first had held out for the Broadway site, offered a tract of 137 acres between the Agricultural College and the Red River and agreed to erect and equip an Engineering Building. August, 1914, however, saw the beginning of the Great War, and a further postponement was necessary.

It became increasingly plain that the University could continue to function most completely only as a Provincial institution, and in 1917 control of the University was vested in a Board of Governors, appointed annually by the Government and responsible to the Government. During these years the University had been making progress. A course leading to a degree in Pharmacy was established in 1905. In 1907 the Manitoba Agricultural College was affiliated with the University. In the same year a Department of Civil Engineering was formed, and in 1909 a Department of Electrical Engineering. Professorships of Political Economy, History, and English were also created in that year. In 1913 chairs were established in French, German, and Architecture, and in 1914 Departments of Classics, Pathology, and Pharmacy were organized. In 1917 the Faculty of the Medical College agreed to transfer their buildings and equipment to the University, on condition that the University carry on a Faculty of Medicine in an efficient manner. A department of Philosophy and Psychology was added in 1920.

The question of accommodation was temporarily met by the erection of a building to the north of the Science Building, by the utilization of the old School for the Deaf, and the old Law Courts, and by the erection, during 1920 to 1922, of temporary buildings on the Broadway site. A grant from the Rockefeller Foundation enabled a new Medical Building to be erected west of the General Hospital.

During the last session of the Provincial legislature the Government appointed a University Committee from members of the legislature to consider the question of a site and new buildings. This committee has now reported unanimously in favour of the Agricultural College site and has recommended that a building, to cost one million dollars, be erected thereon to provide for the needs of the senior years of the University, while the junior years will be housed temporarily on the Broadway site within the city. The report of the Committee will be presented to the Legislature at its forthcoming session. Nothing can definitely arrest the progress of a university which in a little more than fifty years, and in the face of tremendous obstacles, has come to occupy such a prominent place in the educational history of the Dominion, but a wise and liberal policy on the part of the Provincial Government will accelerate its advance and enable the University of Manitoba to take its rightful place in the cultural life of the community.

#### MANITOBA'S MEDICAL SCHOOL

The Manitoba Medical College may be said to owe its origin to the importunity of the medical students. In 1882 Winnipeg was a pioneer prairie town, the famous boom was at its height, and there were tremendous hopes for

the future. A group of intending medical students, headed by John Fawcett, Principal of the High School, called upon Dr. Agnew and requested him, as one time Professor of the Principles and Practice of Medicine at Victoria College, Toronto, to take steps to commence medical teaching in Winnipeg. As a result, a meeting of the College of Physicians and Surgeons of Manitoba was held to discuss this proposal, but it was decided that the time had not yet come for the establishment of a medical school in Winnipeg.

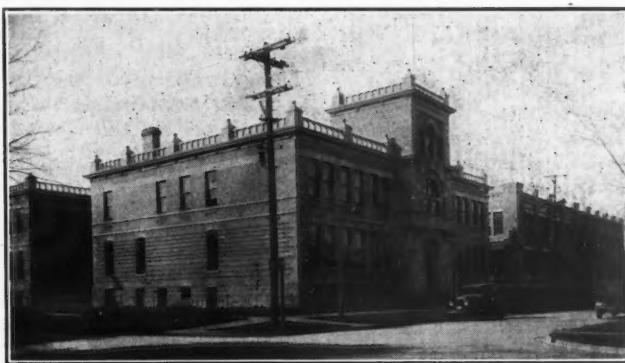
In July, 1883, a young doctor, scion of a distinguished family, arrived from Toronto and announced his intention to start a proprietary medical school. This project was energetically resisted by the doctors resident in the city, the leader being Dr. James Kerr. Dr. Kerr was a colourful personality. A native of Antrim County, he had taken part in the Ashanti campaign under Sir Garnet Wolseley, in 1874-5, was a close friend of Osler and Shepherd of McGill, and a disciple of Lister. In the controversy over the medical school he maintained two principles, first that the established practitioners should be the founders, and second that the granting of degrees should rest solely with the University and not with the Medical School. After a two months' fight agreement was reached among the medical practitioners, and the legislature of Manitoba was requested to grant a charter incorporating the Manitoba Medical College. Thirteen physicians headed by Dr. Kerr, were named as incorporators.

The intention of the medical profession was that, once they had obtained a charter which would preclude the starting of other medical schools in the province, nothing would be done until a more opportune time. Once more, however, the medical students came upon the scene, and, pointing out the hardships and expense consequent upon their attendance at medical schools in Toronto or Montreal, requested earnestly that the school be opened that fall. Circumstances did not seem auspicious, but the insistence of the students prevailed and, after many difficulties had been surmounted, Dr. Kerr, who had been chosen Dean, delivered the introductory lecture on November 15, 1883. In that lecture the professors in the primary subjects were announced as follows: Anatomy,

Drs. Codd and Blanchard; Materia Medica, Dr. R. G. Brett; Chemistry, Mr. John Fawcett, B.A.; Physiology, Dr. A. H. Ferguson. A word or two concerning the subsequent careers of some of these men may not be out of place.

Dr. Blanchard, who with Dr. John Stewart of Halifax had been one of Lister's dressers at Edinburgh, became a leading surgeon of western Canada, a president of the Canadian Medical Association, and died in September, 1928, universally beloved. Dr. R. G. Brett moved to Banff in 1886, established a sanitarium at the sulphur springs, interested himself in public life, became Lieutenant-Governor of Alberta and died September 16, 1929. Dr. A. H. Ferguson, after a notable career as a surgeon in Winnipeg, moved to Chicago, where in this wider sphere he made a notable name, particularly in the field of hernia.

At first the school had no settled abode and various places were utilized. In 1884 the



Manitoba Medical College, Medical Faculty, University of Manitoba

Faculty put their hands into their pockets and arranged for the building of a school at McDermot and Kate Streets, not far from the General Hospital. In this building, with additions, work was carried on until 1906, when a building was erected on the present site immediately to the

west of the General Hospital.

In 1887, Dr. Kerr moved to Washington, D.C., and Dr. J. W. Good, one of the first in Canada to specialize in diseases of the eye, ear, nose and throat, was appointed Dean in his stead. In 1900, Dr. Good having joined the 'Trail of '98' to the Yukon, Dr. H. H. Chown, a distinguished graduate of Queen's University, succeeded him and held office until 1917, when he became a member of the first Board of Governors of the University. Dr. S. W. Prowse, a native of Prince Edward Island, a graduate in Medicine of Edinburgh University, and in 1917 the Commanding Officer of a Casualty Clearing Station in France, was appointed Dean and still holds that office. During all these years the college had been self-supporting, owing to the disinterested action of the Faculty, with the exception of the full time professors, in refusing to accept any remuneration. Up to 1918 the Medical School, though a constituent college of the University, and though all medical degrees were granted by the body, could at any time have withdrawn from the University. The unselfish



and statesmanlike policy of Dr. Chown led to the College becoming, in 1918, an integral part of the University, deeding its unencumbered property and equipment to the larger body on condition that the University establish a Faculty of Medicine and carry on the work of medical education in an efficient manner. The College then became the Faculty of Medicine of the University of Manitoba.

At the present time 275 students are registered, and since 1923 the school has had Class A rating. The course lasts five years, four years being spent in class work, while the fifth is a purely clinical year, the student being an interne at a recognized hospital. Graduates of the school may justly feel a thrill of pride in reflecting that from humble beginnings their Alma Mater is now recognized as one of the leading medical Schools of the Dominion.

#### LEADERS IN BRITISH MEDICINE

SIR STCLAIR THOMSON, M.D., F.R.C.S., F.R.C.P.

One of the most noted authorities on diseases of the throat will be President of the Section of Laryngology and Otology at the British Medical Association meeting at Winnipeg, 1930. Sir StClair Thomson is a Scotsman by descent, though he was born at Londonderry in 1859. He may be truly called an international figure, as he holds honours and awards from nearly every European country, as well as from the United States of America. He was educated at King's College, London; Paris; Vienna; Lausanne (M.D., 1891). He is a Fellow both of the Royal College of Physicians and the Royal College of Surgeons, and was knighted in 1912; an ex-President of the Royal College of Medicine, and of the Medical Society. In addition to appointments as Throat Surgeon to numerous hospitals he is physician to the Royal Italian Opera. His publications include *Diseases of the Nose and Throat*, which has gone into three editions; *Tuberculosis of the Larynx*; *Cancer of the Larynx*; *Atlas of Nasal Anatomy*; *The Cerebro-spinal Fluid*; *Shakespeare and Medicine*; *A House-Surgeon's Memories of Lord Lister*; various bacteriological, physiological and clinical papers on the throat and nose; and, moreover, he is European editor of the *Laryngoscope*. He is a charming after-dinner speaker.

Sir StClair is a Chevalier of the Legion of Honour, and a Commander of the Order of Leopold.

N. BISHOP HARMAN, M.A., M.B., B.Ch., F.R.C.S.

The president of the Section of Ophthalmology is known not only for his high professional standing but also for being Treasurer of the British Medical Association. Born in 1869, he was educated at the City of London School,

and St. John's College, Cambridge, where he was Scholar and Research Student. He married Katherine, daughter of Arthur Chamberlain, J.P., Moor Green Hall, Birmingham, and has three sons and two daughters. He is Lecturer in Ophthalmology, and late Dean of the West London Post-Graduate College; Senior Ophthalmic Surgeon to the West London Hospital; Ophthalmic Surgeon to the Belgrave Hospital for Children; Ophthalmic Consultant to the London County Council Education Department, and the National Institute for the Blind; member of the Government Committee on Causes and Prevention of Blindness, 1920-22; late Chairman of Hospitals Committee; C.M.O., South African War.

His publications are: *Congenital Cataract*; *Preventable Blindness*; *Analysis of 4,288 Cases of Blindness*; *the Eyes of Our Children*; *Aids to Ophthalmology*.

PROF. ROBERT MUIR, M.A., M.D., D.Sc., LL.D., F.R.C.P. (EDIN.)

The President of the Section on Pathology at the British Medical Association in Winnipeg, 1930, is one of the most distinguished of the English speaking pathologists. Since 1899 he has been Professor of Pathology at the University of Glasgow, and is, with the late Professor J. Ritchie, the author of a *Manual of Bacteriology* which has gone into eight editions.

Like so many men of distinction he is a son of the manse. Born in 1864, he was educated at Edinburgh University, where he made a reputation for scholarship. In 1892, he was appointed senior assistant to the Professor of Pathology, Edinburgh University, and Pathologist to the Edinburgh Royal Infirmary. In 1898 he went to St. Andrew's as Professor of Pathology, and in the following year to Glasgow.

His other publications are *Studies on Immunity*, *Text-Book of Pathology*, and many scientific papers. His recreations are golf, fishing, and curling. He is a Fellow of the Royal Society, and a Member of the Medical Research Council. During 1929 Professor Muir was awarded a Royal Medal by the Royal Society for his contributions to the science of immunology.

#### THE OSLER MEMORIAL

The Committee in charge of the Osler Memorial for the Canadian Medical Association again appeals to the members of the profession in Canada to supplement the contributions already received.

Throughout the whole of Canada, subscriptions have been received from 280 members, including a few subscriptions received from others. There must surely be a large number of men



interested in Osler, who would like to contribute if given the opportunity. The Committee cannot make a personal appeal to individual members of the Association. Every reader of the *Journal* who has not already subscribed should send his contribution without delay.

Up to the present time, the majority of the subscriptions have varied from \$10.00 to \$200.00. The Committee will be glad to receive any

amounts, larger or smaller, and has set as an ideal that every active practitioner in Canada should share in the establishment of a great and lasting memorial indicating our respect and admiration of Osler.

Subscriptions may be sent to the Osler Memorial Committee, c/o The General Secretary of the Association, 184 College Street, Toronto 2, Ont.

## Hospital Service Department Notes

### THE CONGRESS ON MEDICAL EDUCATION AND HOSPITALS

A number of closely allied organizations interested in medical education, hospitals, and licensure held their annual congress in February at Chicago. A number of Canadians, hailing from Halifax to Winnipeg, were in attendance and several participated in the discussions. Many subjects were considered, but the topic of the greatest general interest was the cost of medical and hospital care.

#### THE COST OF MEDICAL CARE

In defence of the rising cost, it was pointed out that, actually, the cost of medical care has not risen as rapidly as has the per capita wealth of the citizens at large. Dr. W. C. Rappleye, the Director of the Commission on Medical Education, pointed out that less than three billions of dollars is spent annually in the United States in the care of the sick; of this amount, approximately 25 per cent is spent on doctors, 25 per cent on hospitals, 25 per cent on drugs and patent medicines, 12 to 15 per cent on nurses, and 10 to 13 per cent on quacks, etc. This seems like a large total figure, but as a matter of fact three times as much is spent on pleasure cars and other comparative luxuries; twice as much is spent on tobacco as on doctors; and more is spent upon cosmetics than upon nurses!

A layman discussing this problem from the viewpoint of the laity stated that the public do resent the tendency to set the fee according to the ability of the patient to pay, and he thought that there was some justification for the practice of "shopping". The opinion was expressed that a doctor should not be considered mercenary in frankly discussing financial matters with his patients or their families. This would avoid considerable misunderstanding and would be much more satisfactory to both patient and doctor. Health insurance was advocated by one speaker

as a solution for many defects in the present system.

#### HOSPITAL CARE

A symposium on the cost of hospital care was arranged by the American Conference on Hospital Service. The Secretary of the American Hospital Association, Dr. B. W. Caldwell, was of the opinion that three outstanding factors now contributing to hospital costs are:— (1) the swing towards private rooms, (2) fire proof construction, and (3) added hospital responsibilities, such as educational obligations to nurses, doctors, dietitians and social workers. Costs are high, but if one package of cigarettes out of every three now smoked was untouched, the saving would maintain every hospital in the country for one year! Dr. J. B. Herrick, of Rush Medical College, was of the opinion that there might be fewer extras, fewer special nurses, fewer examinations, less standardization, less waste in the hospitals, less expensive accommodation, more group nursing, and more co-operation on the part of the doctor in expediting the discharge of the patient. An excellent suggestion was that the possibility of extras should be clearly indicated to the patient or relatives on admission.

The President of the American Medical Association, Dr. W. G. Morgan, of Washington, commented upon the situation of the patient of moderate means, a serious problem in a city like Washington, with its great army of clerks and lesser officials. He was of the opinion that semi-private and paying public wards have not been made sufficiently attractive to interest this respectable class, thus forcing them into more expensive accommodation. Moreover, as the average citizen values services in proportion to the amount paid for them, a part-paying system would be better than the common arrangement to pay all or none.

#### MEDICAL PRACTICE AND EDUCATION

Considerable apprehension was expressed over the fact that now, in the United States, 40 per cent of the graduates go directly into

All communications intended for the Department of Hospital Service of the Canadian Medical Association should be addressed to Dr. Harvey Agnew, Secretary, 184 College Street, Toronto.

a specialty. This situation was contrasted with that prevailing in Denmark, a country which has made considerable progress in medical care, where a doctor desiring to practise a specialty must have been graduated six years, of which period two years must have been spent in general practice.

One of the most stimulating addresses was that of Dr. A. T. Holbrook, of Milwaukee, who discussed medical care from the viewpoint of the general practitioner. In his opinion the modern general practitioner is too apologetic. To-day, medical practice needs, not a man who will melodramatically push through mountains of snow to the tiny cottage, operate by candle-light, and eagerly await the appearance of "laudable pus," but one who is thoroughly prepared, well equipped, competent, honest, and willing to recognize conditions beyond his skill. Such a practitioner should be able to treat well over 80 per cent of the conditions brought to his attention.

Anxiety was expressed by several speakers lest the training gained during *internship* should actually unfit the young graduate for the specific problems of practice. There is a wide gap between modern hospital practice and many types of private practice. Also, one speaker regretted that after a sound training in pharmacology and therapeutics, the young graduates should be turned over to the guidance of others, on hospital staffs, whose armamentarium is "pet" prescriptions and proprietaries. In other words, the university should be able to continue to guide the young doctor after as well as before graduation.

#### MEDICAL EDUCATION IN CANADA

The history of medical education in Canada was traced from 1750 to the present day by Dr. E. S. Ryerson, of the University of Toronto. The prolonged discussion on inter-provincial reciprocity in the 90's ultimately led to the formation of the Medical Council of Canada in 1912. The growth and success of the Medical Council of Canada has been quite remarkable, 69 per cent of the graduates of last year taking this qualification. The number of those taking provincial examinations only is steadily dwindling, and hope is held that in the not far distant future one examination will suffice for the university degree and for licence to practise anywhere in Canada.

Dr. Ryerson also called attention to legislation in Ontario which limits the use of the title "doctor," and provides for the registration of non-medical healers under the *Drugless Practitioners' Act*.

Dr. T. C. Routley aroused considerable interest by his lucid description of the forward step taken by the Canadian Medical Association in completing arrangements with a number of

the larger life insurance companies for the periodic health examination of their policy-holders by the *family physician*.

Considerable credit is due to Dr. N. P. Colwell and to Mr. H. F. Sanger, of the Council on Medical Education and Hospitals, for arranging this excellent program.

#### MODERN HOSPITALS IN SWEDEN AND DENMARK

In a recent issue of *The Lancet* (August 3, 1929), Mr. H. S. Souttar, F.R.C.S., gave a very interesting account of a survey of a number of the leading hospitals in Sweden and Denmark. The medical profession and the hospitals in these countries have been pioneers in the development of modern methods and their progress is being watched with considerable interest. Mr. Souttar writes in part:

"We were very greatly impressed by all that we saw and by the immense strides made in medical service throughout Scandinavia. It has become a national service in the best sense of the term, supported by the resources of the State, organized and controlled by a progressive medical profession, and quite obviously used and welcomed by the public, both as a privilege and as a right.

"The position of these hospitals must be understood if their significance is to be appreciated. The organization differs greatly from that familiar to us. Sweden is divided into a number of administrative counties and each of these is responsible for the care of its own sick. In a central town a large hospital which serves the whole county is erected and maintained by the county authorities, who have a considerable measure of autonomy. In only a few large towns, such as Stockholm itself, are these special hospitals maintained by the municipal authorities, and here also are a few independent endowed institutions such as the *Diakoniss Hospital* in Stockholm.

#### PAYMENT ACCORDING TO ACCOMMODATION

"In every one of these hospitals, even in those which correspond to our poor-law infirmaries, the patient has to pay according to accommodation. It is true that with the working class these payments are met from insurance societies, membership of which is universal, whilst the charges themselves are exceedingly moderate, varying from 3s. to 21s. a day with the accommodation. It is however, a perfectly definite payment for services rendered, and although it is backed by the State, or in a few cases by endowment, there is quite obviously no question of charity in the transaction.

"As to the accommodation provided, it is

everywhere of a very high order. There is a general tendency towards the abolition of large wards and the limitation of the beds to six or eight at the most. The majority of the beds are in rooms taking one, two, or three patients, and as a result the patients have a degree of privacy impossible on the older system. This might at first appear to involve additional work for the nursing staff, but the arrangements are so convenient that this does not result. In every hospital ample provision is made for private patients, but the accommodation differs only in small refinements from that in the rest of the hospital, for, indeed the latter can hardly be improved upon.

#### A MEDICAL DIRECTOR

"In all the public hospitals visited by us the professional work is under the control of a medical director, who mostly has a large degree of executive control, and a number of assistants working entirely under his authority. The system is the usual one maintaining on the continent and differs fundamentally from that customary in this country. It cannot be denied that it leads to a degree of co-ordination which must be of advantage both in the progress of medical science and in the treatment of the individual. It necessarily involves, however, the concentration of all the more important work in the hands of a few individuals, and the effect of this is accentuated by the fact that practically the whole surgical work of the country, both public and private, is carried out in the hospitals. It is true that in Stockholm and Gothenburg there are large private hospitals, open to all practitioners, but, in general, surgical practice is only carried on within the walls and by the staff of the local hospital.

#### THE BATHS

"As one would expect in Sweden and Denmark, the bath departments are constructed on a magnificent scale, and one would have to go to Bath or to Buxton to find their rival in this country. Every conceivable form of bath is supplied, and all are in constant use. It appears that rheumatism is a serious problem, and almost every hospital has a separate rheumatic section, specially supported by the State. It takes the form of a boarding-house in which patients can be sent from any part of the country served by the hospital and where they can live comfortably at very low rates, usually met by insurance, during their treatment. The whole organization seems admirable, and it might well be adopted in this country.

#### UNLIMITED SPACE AND LIGHT

"One accustomed to working in a hospital in London is perhaps most impressed by the unlimited space and light available. The wide

airy corridors, the large balconies on to which beds can so easily be wheeled, the ample space provided for the operating suites, and the obvious consideration for the comfort and convenience of all those who have to work in the hospitals, are evidence of sound organization and thorough efficiency.

"It must not be imagined that these hospitals are a new departure in policy, they are rather part of a steady evolution, the evidence of a very remarkable appreciation in Sweden and Denmark of the value of modern medicine and surgery, and of a determination to give them every material assistance that is possible. They are State hospitals in the sense that they are built, equipped, and subsidized by the public authorities, but it is very evident that they are no product of a bureaucratic system but of a wholehearted co-operation between the medical profession and the State. In the very best sense of the word they are national hospitals, and we who visited them are convinced that only on the basis of national funds can such services be supplied."

#### VALUABLE BOOKLET ON HOSPITAL FIRES

A very valuable publication has just been issued by the Dominion Fire Prevention Association, Ottawa, under the title "Unseen Hazards in Hospitals, Clinics and other Institutions." (Bulletin No. 1). This booklet covers very thoroughly the fire hazards of the x-ray department and also goes into many other factors, such as inflammable anæsthetics, partitions, roofs, kitchen hazards and other details. A particularly valuable section is devoted to a report of the Conference of Fire Marshals, Hospital Executives and others interested in hospital fires, held in Ottawa last July. Much valuable data were brought out at this Conference and the facts are fully reported. There are a number of illustrations in regard to the correct procedures to be adopted in the construction and equipment of an x-ray department in order to minimize fire hazards. Copies of this excellent booklet may be obtained from the editor, Mr. J. Grove Smith, Dominion Fire Commissioner, Department of Insurance, Ottawa, or from the Department of Hospital Service of the Canadian Medical Association.

#### HISTORICAL EXHIBIT AT THE ONTARIO MEDICAL MEETING

One of the features of the Semi-Centenary Meeting of the Ontario Medical Association in Toronto, at the end of May, will be an exhibit of historical records dating back to the early days of medicine in Ontario. The Committee in charge of this exhibit is now busily engaged



in gathering together old records, such as the first Minute Books, copies of the original Constitution and By-laws, early programs, presidential addresses, etc. It is hoped to have available a number of early group photographs in which, by careful search and considerable use of the imagination in piercing the hirsute adornment, we can locate a number of our present senior contemporaries.

One particularly interesting feature of this historical exhibit will be the collection of books written by Ontario physicians. Already a surprising number of such contributions have been

located, the field covering not only works on medical and allied subjects but also books on various themes far removed from the usual interests of a physician. If any of our readers have in their possession literature, data, relics, old photographs, or any other objects which might be of historical interest, and which have a definite bearing upon the history of early medicine in Ontario, or which are contributions or were possessions of early Ontario physicians, the loan of such material for this exhibit will be much appreciated by the Ontario Medical Association.

## Provincial Association Notes

### CONVENTION OF THE ONTARIO MEDICAL ASSOCIATION

TORONTO, MAY 27TH TO 30TH, 1930

It looks just now as if all roads in Ontario, at least so far as the doctors are concerned, will lead to the Royal York Hotel during the last week in May. Plans for the "Golden Jubilee" meeting of the Ontario Medical Association have been completed and a most interesting program of wisdom and wit has been arranged by the program committee under the direction of Dr. G. S. Young.

The scientific sessions promise to be of unusual merit and include papers by outstanding speakers from various Ontario cities as well as addresses by authorities from Montreal and various United States cities. A particularly pleasing innovation is the presence on the program of an invited guest from each of the sister provinces. These gentlemen will contribute papers to the scientific program and extend their fraternal greetings at the annual dinner.

The Round Table Dinner, which is now one of the most important features of the Ontario Medical Association Convention, will be directed as usual by the Committee on Interrelations. The discussion, open to all, will centre on such phases of medical practice as bear directly on economics and our relationship to the public. Dr. Routley was fortunate in securing as guest-speaker, Dr. W. C. Rappleye, Director of

the Commission on Medical Education in the United States. His extensive studies should well qualify him to participate in this discussion.

The Annual Dinner Dance will be the social pivot of the meeting. In addition to the address of the President, Dr. John Ferguson, himself a charter member and one of the most cultured speakers in medicine to-day, a most interesting program has been arranged, including a presentation to all living Past-Presidents. The dinner will be followed by the annual dance with music by Romanelli's orchestra.

At the luncheon on Wednesday, May 28th, Mr. Hector Charlesworth, the editor of "Saturday Night" will speak on "Doctors and alleged doctors". Reverend Father Burke, also an excellent afterdinner speaker, will address the members at the Thursday luncheon.

Golfers are to be well cared for by the Golf Committee. The annual competition for the beautiful golf cup presented by the Hamilton Medical Society will be held at the Lakeview Golf and Country Club on Tuesday and Wednesday, the trophy being presented at the dance on Wednesday evening. The Ladies' Committee is very actively arranging for the large number of out-of-town guests anticipated.

As the Royal York Hotel has been especially designed for large conventions and it will be possible to hold all meetings and functions in the one building (with the exception of the golf tournament!) this Golden Jubilee meeting should prove to be the most successful convention in the history of the Ontario Medical Association.



## Medical Societies

### THE MCGILL NEUROLOGICAL CONFERENCE,\* MONTREAL

#### No. I

#### THE INFLUENCE OF FUNCTIONAL CIRCULATORY DISTURBANCES ON THE CENTRAL NERVOUS SYSTEM†

BY PROF. W. SPIELMEYER,

*Deutsche Forschungsanstalt für Psychiatrie,  
Kaiser Wilhelm Institut,  
München*

Anatomical investigation shows that the variety and spread of changes can be of circulatory origin, without, however, there being a change in the size of the lumen of the vessel or pathological changes in the vessel wall. It can also be proved anatomically that a non-organic obstruction to the circulation may cause a degeneration of the central nervous system; in other words, a disturbance of the circulatory function only may produce conditions similar to those caused by an organic occlusion of the circulation. The foci will appear the same, and, yet, one has resulted from a distinctly recognizable occlusion of the vessel and the other has developed without such an obstruction. I have long observed that foci of alterations are found not only within the reach of vessels narrowed by the arteriosclerotic process, but also in parts of the brain which are provided for by intact arteries.

It is not necessary to-day to bring new proof for these similarities in the effect of organic and of functional alterations in the circulation. To-day, and here, it is more important for me to show how from the most different causes injuries can result in the brain which are strikingly similar in appearance. We find the same alterations in traumatic lesions, carbon monoxide intoxication, morphine intoxication, chloroform narcosis, hypertension, pseudo-uræmia, and after other spasmodic conditions. The alterations differ only according to their age and intensity. When they sometimes seemed to be different in their localization and that there was something really typical in them, further experience showed

that this was an error. So these findings mean nothing for the definition and classification of disease entities. Their fundamental value consists rather in showing something common to all those diseases, etiologically and clinically so very different, not anatomical forms of diseases but pathogenetically similar complexes of symptoms. The essential result of these findings is the predominance of central circulatory alterations in brain injuries caused by the most different noxæ, such as trauma, intoxications, infections, hypertension, or eclampsia. It can be seen from this how the most varied injuries, by a more or less long chain of causes, finally lead to the same patho-physiological process. From this we may infer what meaning these determinations have in neurological and psychiatric questions. I think they give us an understanding of the essence of these brain alterations. And, moreover, the pathogenetic analysis leads us, through the knowledge of the development of brain conditions, into patho-physiology; and by patho-physiology, which is evident morphologically, we understand many clinical symptoms.

We try to make use of the microscopic findings in the interpretation of clinical symptomatology. After all, this can only be done in co-operation with the clinician. He tells us if focal symptoms of the afore-mentioned kind are present, such as apoplexies, paresis, and fits in youthful hypertonics, in eclampsia, eclamptic intoxications, and traumatic conditions. The photographs shown here demonstrate the anatomical background of such circumscribed cerebral manifestations. For a long time we have neglected to consider the fresh necrobioses which only appear as a faint pallor, but many so-called "hæmiplegias without anatomical findings" can be explained by these pallors, visible only in the Nissl preparations. It is the same with general symptoms of cerebral origin—sudden drowsiness and coma, or excitement with anxiety, and signs of acute delirium. Such general cerebral symptoms can be in relationship with widespread vasomotor disturbances, which acted on large parts of the brain tissue. In most of the cases a special vascular district, as for instance, the district of the arteria cerebri media, or the posterior, was especially involved on one side. Sometimes the same district on the opposite side also showed some damage, and in a few cases there were alterations in very different vessel districts.

We also know psychic symptoms, for instance in intoxications, which according to our experience we connected with circulatory damage, but which showed no visible morphological sub-

\* The Proceedings of February 5, 1930, reported by J. N. Petersen, M.D., Secretary.

† Note: Dr. Spielmeier presented a series of microscopical sections from the cerebral cortex. These showed areas of focal blanching and necrosis, some of which were associated with vascular occlusion, and others, identical in appearance, with no structural vascular changes whatever. His contention that functional changes in vascularity may produce the same changes in the cortex as those following occlusion of the vessels forms the basis of the following paper.

strate. We must suppose that here the central circulatory disturbances were not yet strong enough to destroy the nervous tissue. To produce visible alterations in the tissue a certain intensity of circulatory deficiency is needed. Such cases explain the possibility of a total recovery and of the disappearance of menacing symptoms. In morphine intoxication, for instance, these findings are very impressive. From the appearance and disappearance of symptoms as well as from the often observed increasing and decreasing of their intensity we can conclude that the angiospasm or stases are varying in degree. This may explain hæmiplegia, its varying intensity, and its final disappearance, as well as the different degrees of unconsciousness, its increasing into coma, and its final disappearance. The angiospasm and angioparalysis can be followed by a recovery of the vasomotor functions. Certainly our statements still need control and confirmation. Nevertheless, they mean that some progress has been made, by demonstrating that the brain alterations and symptoms are not, as was formerly believed, directly caused by the toxic or traumatic influences but mainly by their effect through circulatory changes.

There is, in general, no other topic in neurology and psychiatry for which the anatomist is so much in need of the help of the clinician in order to analyze not only medical but also purely anatomical questions of natural science.

#### DISCUSSION

*Dr. Russel.*—

Dr. Spielmeyer's paper opens to me new vistas as to the pathology of convulsive states which, it seems, may be of great importance. One gathers from his reported findings that vasomotor nerves do exist in the small vessels of the brain. This of course was denied for many years. One is impressed with the amount of work such a research implies. The search for a possible thrombus or a blocking of vessels that does not exist is almost endless.

*Dr. Penfield.*—

For many years Alzheimer stood out as the authority in neuropathology in Germany. Since Alzheimer's death neuropathology has lacked a leader, but his mantle, we may with certainty say, has fallen upon the shoulders of his spiritual successor, Professor Spielmeyer. It seems to me that the work he has done is of remarkable importance. There are many anatomical studies which represent an enormous amount of work, but which are sterile in the end. The results are catalogued, but the facts are dead, with no significance. Dr. Spielmeyer has described focal necroses of cerebral tissues which are obviously secondary to the occlusion of small cerebral vessels. So far that is a typical piece of work worthy to be added to our anatomical museum. Such necroses will obviously follow occlusion of the vessels from any cause, such as emboli or thrombosis. But in some cases he finds no such occlusions in the vessels; the vessels are anatomically normal. Therefore he makes a step forward which is important in concluding that the vessels must have been shut off functionally for a certain length of time. He finds the same necrosis in cases suffering from epilepsy, though the

vessels are normal. Therefore, in the attacks of epilepsy there is evidently a vasomotor spasm.

There can be no doubt now that the vessels of the brain do contract. Alterations in the calibre of pial vessels have been photographed in the laboratory of Cobb, in Boston. These alterations are produced in the vessel following sympathetic stimulation, and a further piece of work by Gildea and Cobb gives us further evidence in favour of Spielmeyer's conclusion. These authors shut off all blood supply to the brain in animals for a limited period and allowed the animal to recover. When the brains were examined focal areas of necrosis were discovered, similar to those Professor Spielmeyer has described this evening. This seems to indicate that functional closure of vessels does produce focal destruction.

*Dr. Archibald.*—

I am delighted to have been able to hear Dr. Spielmeyer's discussion. Although at present I am not actually working upon problems of the nervous system, I have been interested in cerebral physiology from the time of my earliest studies. On what seemed to be excellent evidence, particularly on the basis of some excellent German work, my earlier conclusion was that the vessels of the brain were not under the control of the vasomotor centre. We see now that it is necessary to revise our conceptions in this regard on the basis of this evidence supplied by Dr. Spielmeyer and Dr. Penfield. As a matter of fact, it always seemed to me incongruous that the brain vessels should in this respect act differently from other vessels in the body. It is a pleasure now to see this incongruity cleared away. My purpose in rising was to move a vote of thanks to Dr. Spielmeyer, a vote which expresses our indebtedness to him for the honour that he has done us. (Applause).

#### POST-OPERATIVE RESULTS IN A CASE OF SYRINGOMYELIA

##### No. II

BY JEAN SAUCIER, M.D.,  
Montreal

This case is one of syringomyelia with unilateral symptoms. The disease had first been manifested a little over a year ago by weakness in the right shoulder and arm. The condition grew worse, and by the middle of December, 1929, the patient gave evidence of a full syringomyelic syndrome, including thermanalgesia from the second cervical to the seventh thoracic segment on the right side. The other types of sensation were normal and the deep reflexes in the right upper limb were absent. Furthermore, the patient recently complained of acute knife-like pains in the distribution of the right third, fourth, and fifth cervical segments, which prevented him from sleeping and made life almost unbearable for him. A lumbar puncture, in the summer of 1929, had given entirely negative findings and one done, with manometric studies, on December 22, 1929, suggested a partial block. X-ray examination of the cervical vertebrae had always been negative. No other pathological neurological findings were elicited, and the anamnesis did not present any other feature of interest.

Because of the localized findings an operation

was performed by Dr. W. V. Cone, who removed the laminae of the first four cervical vertebrae and the posterior arch of the foramen magnum. The tonsils of the cerebellum were found to be hardened and shoved down through the foramen magnum to the level of the second cervical vertebra, thus constituting abnormal pressure upon the cord. Under these lobules a cyst was discovered in the cord and dilated vessels were seen. The cyst was opened and the tonsillar lobes of the cerebellum were removed. Further exploration of the fourth ventricle was not possible on account of the patient's failing condition. The cerebellar dura was somewhat thickened and the cervical arachnoid showed marked adhesions to the dura. The walls of the cyst were smooth and were covered only by pia. The cyst itself measured 1 cm. in length by 5 mm. in depth. The vermis, also hardened, was left untouched. The large vessels were not ligated for fear of disturbing the cerebellar circulation. Sections of the cerebellar tonsils showed marked gliosis of the molecular and granular layers with disappearance of the Purkinje cells.

Since operation the pains have entirely disappeared and the patient went home three weeks later. Sensory examinations have showed a most peculiar picture, consisting essentially of a gradual recovery of pain sensibility, with an inability to recognize thermal stimuli. The strength in the right shoulder has improved and, in spite of the removal of the cerebellar tonsils, this organ remains functionally unimpaired. Otherwise the neurological condition is unchanged.

In this case the pre-operative diagnosis has been confirmed, but the ectopia and gliosis of the cerebellar lobules were unexpected. It makes one feel that in certain cases of highly localized syringomyelia a surgical exploration of the region is likely to enlighten the situation.

#### THE EDMONTON ACADEMY OF MEDICINE

At the regular meeting of the Academy for March, Dr. W. C. Redmond was the historian of the evening and gave a short paper which was of great interest, on "Symbolism in medicine." The chief paper of the meeting on "Zulu and allied tribes, their moral and sexual laws," was contributed by Mr. R. W. Pinecott, who having lived amongst these people for many years was especially well qualified to deal with the subject.

At the April meeting of the Academy, following a historical paper on "The early medical uses of tobacco," by Dr. F. S. MacPherson, Dr. Walter Scott gave the paper of the evening entitled "The effects of tobacco" in which he

dealt fully with the alleged ill effects of its use, giving arguments for and against. Discussion followed.

Under the auspices of the Canadian Medical Association, Dr. McKenty and Dr. Nicholson of Winnipeg visited Edmonton on April 7th. At the clinical meeting held at the Misericordia Hospital in the morning Dr. McKenty gave a clinic on a case of cholelithiasis and on one of cholecystitis; and Dr. Nicholson, a clinic on a case of puerperal sepsis and one of recurrent diarrhoea. A large gathering of medical men from Edmonton and the vicinity was present.

The meeting called for the evening was first addressed by Dr. Harvey Smith of Winnipeg, President of the Canadian Medical Association, on the approaching meeting of the British Medical Association in August. He outlined the program and form of entertainment proposed and urged the attendance of as large a contingent from Alberta as possible at this unique event in the medical history of Canada, when the Canadian Medical Association will act as hosts to the distinguished visitors from abroad.

The first subject of the evening was taken up by Dr. McKenty who, in a most instructive and practical way, discussed "The care of post-operative cases," under the following heads: (1) shock; (2) nausea; (3) acute dilatation of the stomach; (4) respiratory distress; (5) massive collapse of the lung; (6) intestinal obstruction due to peritonitis.

"The common cold and its treatment" was the subject of an address by Dr. Nicholson, who expressed the opinion that the organism responsible for this baffling and extremely prevalent condition was so small as not to be visible under the microscope, as ordinarily equipped with the oil immersion lens. The extreme minuteness of this organism made it difficult or impossible to obtain a vaccine from it which might be of benefit. The ordinary stock vaccines containing the various organisms which are associated with common colds have been very ineffective and disappointing as a means of treatment, as is to be expected when they are not the real causative factor. The common cold is not to be confused with influenza or hay-fever, conditions which are due to special organisms. The treatment outlined by Dr. Nicholson for the alleviation or cure of this scourge of mankind consisted of: (1) rest in bed; (2) increased fluid intake, plenty of water, and (3) sedatives to control useless cough in the early stages.

Following the discussion, the President of the Academy expressed the thanks and the appreciation of the members to the visiting clinicians for their very valuable and instructive addresses.

T. H. WHITELAW



### THE HALIFAX MEDICAL SOCIETY

The Halifax Branch of the Medical Society of Nova Scotia at a regular meeting in January of this year passed unanimously the following Resolution:—

"WHEREAS our respected and esteemed confrère, Dr. Murdoch Chisholm, after fifty years of practice, and for many years a member of this Society, was recently called from us by death;

AND WHEREAS, by his spoken and written work and act he contributed largely to the progress, welfare, and harmony of the medical profession in this City and Province of Nova Scotia, and in a considerable measure throughout Canada;

AND WHEREAS, the influence of his sound medical teaching in the hospital and in the Medical School was always recognized and highly appreciated by students and confrères, and in no less degree his kindly sympathetic attitude, warm friendship, and unselfishness set for all a high standard and revealed ideals in reality;

AND WHEREAS he exemplified in his life a deep spiritual nature, always to champion the cause of Christian virtues, and with skill and vigor

attack what was wrong or unworthy; his charitable nature had blended with it a delightful "pawky" humour, and appreciation of humour;

AND WHEREAS, in his medical practice, as in all his relations in life, he was always kind and sympathetic, and his response to suffering and poverty was deep and generous;

AND WHEREAS, he exhibited in his life and work a high standard of citizenship, recognized and appreciated by the community as well as the members of the profession;

THEREFORE BE IT RESOLVED, that this Society place on the minutes our testimony to the exemplary life and work of our departed confrère and friend of all."

### THE ONTARIO NEURO-PSYCHIATRIC ASSOCIATION

The next meeting of the Ontario Neuro-Psychiatric Association will be held at the Psychopathic Hospital, Toronto, on May 27th next.

GEORGE C. KIDD,

Secretary O.N.P.A.

## Reports of Societies

### THE OVARY-STIMULATING HORMONE

At a recent meeting of the Toronto Branch of the Canadian Chemical Association, Prof. J. B. Collip, Professor of Biochemistry at McGill University, gave a lecture on his recent work in the purification of a hormone derived from the placenta. He paid high tribute to the work which had been done along these lines by such men as Evans, Smith and Engel, Ascheim and Zondek, and Wiesner. Wiesner had reported his work at the International Physiological Congress held in Boston last summer. While in Montreal, on his way back to Edinburgh, he demonstrated to Prof. Collip the preparation of the active material from placenta, and the effect of this material on young rats.

Collip has been able to purify and concentrate this substance to the point where the separation of the active crystalline substance may be confidently expected. Earlier workers had believed that this hormone derived from the placenta was identical with the sex hormone derived from the anterior lobe of the pituitary gland, but while admitting that absolute proof had not been yet obtained, the lecturer emphasized that in his opinion there is a specific placental hormone. This he calls the true hormone of pregnancy. He believes that it is

produced during pregnancy and is intended for its regulation. Any other effects it may have are probably fortuitous. This in brief is his theory.

He has shown that the placental substance is active when given by mouth, whilst the anterior lobe material has been reported to be inactive by this method of administration. The anterior lobe material has not been purified to the same extent as has the placental substance. The possibility must be considered that the material may be made in the anterior lobe of the pituitary gland and stored in the placenta. He is inclined to believe that it is made in the placenta.

This ovary-stimulating hormone derived from the placenta differs from œstrin, the œstrus-producing hormone of the ovary, in both its chemical and its physiological properties. Œstrin is soluble in ether, whilst the other material is not. Œstrin promotes maturation of the genital tract and the phenomenon of œstrus in castrated animals, whilst the substance derived from the placenta acts only when the ovaries are intact.

The application of the substance derived from placenta in the treatment of clinical conditions presents many interesting possibilities. The clinician, aided by new physiological data, which are accumulating very rapidly, decides



whether he wishes to stimulate the ovaries of his patient, or to provide the œstrus-producing hormone, or perhaps the hormone derived from the corpus luteum. If he desires to rest the ovaries by providing the substances which they produce, he may administer œstrin, which is readily available in concentrated form, or the active material from corpus luteum when it is available.

The lecture covered practically the same

ground as his recent articles in the February, 1930, number of the *Journal*, but he was able to report certain extensions of both the physiological and chemical studies. The meeting was well attended and there was a very active discussion led by the Chairman, Prof. V. E. Henderson, Dr. F. G. Banting, and Dr. C. H. Best. In the motion of the vote of thanks, Prof. Collip was warmly congratulated on his excellent work.

## University Notes

### University of Toronto

The Donald C. Balfour Lectureship in Surgery.

The Fourth Annual Lecture was delivered in Convocation Hall, April 5, 1930, at 11 a.m., by John M. T. Finney, B.A., M.D., D.S.M., F.R.C.S., Professor of Clinical Surgery, Johns Hopkins University, Baltimore, Md. The subject of the lecture was "The making of a surgeon."

### University of Glasgow

In succession to the late Lord Rosebery Sir Donald MacAlister was installed on March 4th as Chancellor of the University of Glasgow. Sir Donald was Principal of the University for twenty-two years and retired last October. Principal R. S. Rait presided at the commencement of the ceremony, and the new Chancellor took the chair after the administration of the oath. Among those upon whom he conferred the degree of Doctor of Laws were Sir George

Newman, Chief Medical Officer of the Ministry of Health, and the new Principal and Vice-Chancellor of the University of Glasgow. In his address the Chancellor referred to the Glasgow School of Theology, which included both the University Divinity School and the Trinity College of the United Free Church. These would now be united as a result of the recent union of the Churches.

### University of Sydney

Dr. Charles George Lambie, M.C., F.R.C.P. (Ed.), has been appointed to the Bosch chair of medicine in the University of Sydney. He is 38 years of age, and graduated M.B., at Edinburgh in 1914, and M.D. in 1927, when his thesis was awarded a gold medal. During the war he served in the East as captain in the R.A.M.C. He has been an assistant physician to the Edinburgh Royal Infirmary and Lecturer in Medicine in the School of Medicine of the Royal College, Edinburgh.

## Special Correspondence

### *The London Letter*

(From our own correspondent)

The annual report of the Medical Research Council contained nothing this year like its caustic comments of last year upon artificial sunlight to stimulate the lay press into fury but a very admirable and fair review of the subject of clinical research has certainly caused a great deal of interest, especially among the consultant members of the profession. Is there, asks the Council, a science of experimental medicine of which the actual material for study is the human patient? Undoubtedly this must be answered in the affirmative, and indeed the work of such a "research physician" as Sir Thomas Lewis is alone sufficient to answer the question. But it is fairly argued that Sir Thomas is exceptional; he is attached to University College Hospital as a physician and he is a full-time

worker for the Medical Research Council. The output of scientific work on the subject of the circulatory system from this centre has been of high order. It is perhaps not altogether a chance coincidence that Sir Thomas Lewis himself has written a recent article in which he sets out the result of his twenty-five years as a research worker and he emphasizes what the Medical Research Council also stresses that the physician who is going to devote his life to research work must be specially trained. He must receive quite a different upbringing from that of the doctor who is to treat patients either as a consultant or as a general practitioner. The research physician must essentially have the scientific outlook, handling "cases" as "subjects," while the ordinary physician is trained much more for diagnosis and treatment of the individual. Both in what Sir Thomas Lewis says and in the Council's

report there is a plea for more young full-time research workers in experimental medicine. At the present there are no posts available because there are no trained men and no men in training because there are no posts! The next few years will probably see many developments in connection with clinical research.

Is cod-liver-oil and malt to be regarded as a food or drug? This is a most difficult question to answer and certain events have brought it very much to the fore during the past month. Recently, acting under the provisions of the National Health Insurance Acts, the London Insurance Committee investigated a case where a firm of four practitioners, working in a very poor part of the East End of London, was penalized to an extent of £100 for lavish prescribing of such things as malt and cod-liver-oil for patients whose nutrition was obviously bad. In the phrase of one of the medical journals it was found "impossible to countenance idealism at the expense of a limited public fund". It is argued that the State has established means by which, in approved cases alimentary needs can be supplied and what is known as the Drug Fund ought not to be used for anything other than therapeutic substances. This, of course, at once raises the whole question of the definition of drugs for medical purposes as allowed under the Insurance Acts. A committee appointed over a year ago by the Minister of Health to consider this whole question has just issued its report. The committee was asked to allocate some 165 substances and preparations into three main categories: (a) never a drug, (b) always a drug, and (c) sometimes a drug. This classification was found to be too simple and finally a scheme of six divisions was employed. Cod-liver-oil and malt come into a group "which may be, but are not always, drugs or medicines for the purpose of medical benefit" and it is further observed that these substances "are occasionally prescribed in circumstances which render it difficult to establish that their use was therapeutic rather than alimentary". It seems rather hard on general practitioners if an expert committee can get no nearer to exact definition than this.

The first week in April has seen two important and interesting celebrations in this country. The Ophthalmological Society of the United Kingdom celebrates the fiftieth year of its existence. It owed its origin to a small but distinguished band of ophthalmic surgeons who were in the habit of meeting rather casually at Moorfields and the first president "Mr. William Bowman" was in the chair at the inaugural meeting in 1880. Since that day the Society has flourished and works in strong co-operation with the Ophthalmological Section of the Royal Society of Medicine. The other anniversary concerns Henry Hill Hickman who died, a disappointed man at the early age of twenty-nine on April 2nd., 1830. He was disappointed because his discovery of the principle of anaesthesia by the inhaling of gaseous substances into the lungs

and thence to the circulation was so coldly received by English and French colleagues. Despite his now celebrated pamphlet of 1824 his work was unrecognized until 1847 when the rival claims of Morton and Wells, among others, were being discussed and while these later workers improved upon Hickman's carbon-dioxide as an anaesthetic they used his principle.

ALAN MONCRIEFF

London, April, 1930.

### **The Edinburgh Letter**

(From our own correspondent)

His Royal Highness the Prince of Wales is to pay a visit to Edinburgh in June. The visit is associated with the bicentenary of the Royal Infirmary, the celebration of which took place last year. In addition to visiting the Infirmary the Prince is to inspect the Murray Home at Gilmerton. This institution has been erected under the ægis of the Royal Infirmary for sailors and soldiers disabled in the European War. Accommodation is provided for 20 beds, with separate rooms for each patient. The home was built and will be maintained under the bequest of the late Miss Helen Murray. It is of interest that Murray Home is situated at Moredun, Gilmerton, the home of the late Mr. Alexis Thomson, formerly Professor of Systematic Surgery in the University.

On March 7th. a dinner was held in the Hall of the Royal College of Physicians, when Dr. G. M. Robertson, the Superintendent of the Royal Edinburgh Hospital for Mental and Nervous Disorders, and Professor of Psychiatry in the University, was presented with his portrait. The picture was painted by Mr. H. J. Gunn and is the gift of the Managers of the Hospital to mark their appreciation of Dr. Robertson's services to the Institution and to the cause of mental hygiene. Dr. Robertson is portrayed in his robe as President of the Royal College of Physicians. A second picture by the same artist is to be presented to the College. The Right Hon. T. B. Whitson, the Lord Provost, presided at the dinner which was attended by Sir Norman Walker, President of the Royal College of Physicians, Dr. Haig Ferguson, President of the Royal College of Surgeons, Sir Robert Philip, Sir Montague Cotterill, Dr. Hamilton Marr and Dr. J. P. Sturrock, Commissioners of the Board of Control, the Council of the College of Physicians, and the Managers of the Board of the Hospital. In replying to the toast of his health, Dr. Robertson emphasized the long connection between the College of Physicians and the Royal Hospital. The institution found its original conception in the mind of Dr. Andrew Duncan, senior, a former president, whose portrait by Raeburn looked down upon the company from the wall of the College. In 1773 when attending the unfortunate poet Robert Ferguson, who was "struck down by an attack of furious insanity",

Dr. Duncan found the condition of the city Bedlam so deplorable that it made a lasting impression on his mind. In 1790, the very day after he was elected President of the Royal College of Physicians, Dr. Duncan visited the cell in which the poet had died sixteen years before. He brought his plans for the better treatment of the insane before the Council of the College. A grant of £2,000 for the building of the new institution, later to be so well known as Morningside Asylum, was obtained from the Crown, out of estates which had been sequestered after the Jacobite Rising of 1745. Dr. Robertson's picture will be a valuable addition to the collection of the College. The College already possesses portraits of many celebrated psychiatrists, who were Fellows of the College—Sir Alexander Morison, Thomas Laycock, Sir John Batty Tuke, Sir John Sibbald, and Sir Thomas Clouston. Laycock was Professor of Medicine in the University, Sibbald was a Commissioner of Lunacy, and the other three were Presidents of the College.

The experiment of the Lanarkshire Education Authority in providing 10,000 school children with a daily ration of milk is exciting a lot of interest. This has been described as the world's largest dietetic test. The Education Authority has selected 67 schools, in which the experiment will be carried out during the next 4 months. In the selected schools from 100 to 200 children will be given a ration of milk daily, while an equal number will have their ordinary diet. In previous tests which had been conducted at the Rowett Institute, Aberdeen, the remarkable results obtained were criticised. It was said that the numbers of children being examined were too few to make the test a fair one. In Lanarkshire an attempt on a wide scale is to be made to find the effect of a regular ration of milk on the health of an average school child. As a start is to be made with 10,000 children, it will not be possible for one or two abnormal ones in a class to upset the figures. About one-third of the children come from what may be described as "distressed homes." The children will be accurately weighed and measured. They will be supplied with three-quarters of a pint of milk each school day from the end of February until the beginning of July. The milk will be divided, half being Grade A tuberculin raw milk, and the other half Grade A pasteurised milk. In addition to the 10,000 children who are to get the milk, a further 10,000 on ordinary diet will be weighed and measured, and the result of the two groups will be compared. The cost of this experiment is not to fall upon the rates. Half of the £10,000 needed is being subscribed by the Empire Marketing Board in the form of a grant, and the remainder is to come from the Miners' Relief Fund and other sources.

The annual dinner of the Royal Medical Society was held in the Hall of the Royal College of

Surgeons, when Dr. Haig Ferguson, President of the College was in the Chair. This society will be celebrating its bicentenary in a few years' time. It has a small but valuable library, and some of the books are of extreme antiquity. The society still retains among its laws regulations prohibiting the practice of duelling to settle disputes which might arise out of discussions at its meetings. The immortal Cullen was one of the very early members, and the poet Oliver Goldsmith joined in 1752 while a student in Edinburgh. In one of his essays Goldsmith thus described a society, "Happy society, where members think before they speak, deliver nothing rashly, but convey their thoughts to each other pregnant with meaning and matured by reflection". Was Goldsmith thinking of the Royal Medical Society when he wrote those lines?

A well known figure has passed away in the person of Miss Annie Warren Gill, C.B.E., R.R.C., late superintendent of nurses for 22 years in the Royal Infirmary of Edinburgh. At the time of the South African War, Miss Gill proceeded overseas as Matron of the Edinburgh Hospital, which was commanded by the late Professor of Surgery, John Chiene. A service in memory of Miss Gill was held in the chapel of the Royal Infirmary, which was attended by representatives of every department in the hospital and by many of the consulting physicians and surgeons.

The Syllabus of the Post-Graduate courses in Medicine and Surgery at the University and at the School of Medicine of the Royal Colleges has now been issued. These are divided into courses held during the summer vacation and courses held at other times of the year. The former include a month's course in Obstetrics, Gynaecology and Diseases of Children, followed by a General Practitioners' course and a Surgical course; the two latter running concurrently for a month. In addition, there are various special courses and lectures on various subjects. The latter include courses on Tuberculosis, Ear, Nose and Throat, Ophthalmoscopy, Venereal Diseases etc. Graduates who may desire to study in Edinburgh at other times than those arranged, or who wish instruction in any special branches of Medicine, may communicate with the Honorary Secretary of the Post-Graduate courses in Medicine at the University. For the convenience of graduates attending the summer courses, accommodation can be arranged in the various University Halls; Ramsay Lodge, St. Giles House, and Blackie House. The University Union, which contains a library, reading room, dining hall, smoking room and billiard room, is also available for the use of graduates at a moderate charge.

GEORGE GIBSON

23 Cluny Terrace, Edinburgh.



## Topics of Current Interest

### Sex Hormones of the Anterior Pituitary

A considerable amount of publicity was provoked by the recent announcement by the Dean of the Faculty of Medicine of McGill University concerning the successful extraction by Professor Collip of a substance in crystalline form from the human placenta which exerts a very profound influence upon the ovary. In the official announcement it was stated that this success marked the final stage of a long series of experimental studies carried out by many workers in different countries, and generous acknowledgement was paid to the contributions of my colleague Dr. B. P. Wiesner. Since in certain accounts which have appeared in this country erroneous statements seem to have been made, it appears to us desirable that the facts of the matter as we see them should be set forth.

It has been established for a long time now that the elaborated products of the anterior lobe of the pituitary exert profound influences on growth, on the incitement and on the inhibition of œstrus and so forth, and the influence of the pituitary on the ovary has commonly been referred to the action of the sex hormone of the anterior pituitary. Dr. Wiesner and I, in 1928, endeavoured, we think successfully, to show that the relation of anterior lobe and ovary is by no means so simple, and that in order to accommodate all the facts that have now been demonstrated, it is necessary to postulate the existence of two gonadotrope factors in the anterior lobe. Since then, further work on these two factors has been continued, and the results have been reported on several occasions. Moreover, extracts containing these factors have been supplied for use in clinical practice, and in due course those clinicians who have used them will record their conclusions in appropriate journals. But, of course, from our point of view, this clinical application was regarded as being essentially experimental, and we have been eagerly, and, it may be said, confidently awaiting the conclusions derived from clinical experience.

In view of the fact that such tentative reports as we have received have been definitely encouraging, Dr. Wiesner, who attended the Physiological Congress at Boston and gave a demonstration of this work, drew Professor Collip's attention to it and to its promise. We regard it as exceptionally fortunate that Professor Collip should have been attracted to this particular field, and particularly that he should have thought it worth while to extend the work. Naturally, we have read with the greatest

possible interest the preliminary account given by Professor Collip in the *Canadian Medical Journal*, and we eagerly await the publication of the details of his methods of preparation. For, from the paper that has appeared, it is quite impossible to gather whether the substance which he has isolated represents the œstrogenic or the kyogenic factor, and, what is even more interesting to ourselves, whether the hypothesis concerning the duality of the sex hormone of the anterior pituitary which we have adumbrated is correct or otherwise.

There is one point in Professor Collip's paper which is puzzling, for he seems to have found it desirable to abandon the use of sulphosalicylic acid for the reason that he found it a barrier to further purification. In this department, Wiesner and Patel have elaborated methods which remove and recover this agent, and the methods now in use have given us extracts of greatly increased purity and potency. Reports concerning the experimental and clinical use of these extracts will appear in the near future. Now that work on these substances is being prosecuted on both sides of the Atlantic, it may be expected that great advances in our knowledge of their nature and in the usefulness of their application will be made.—Letter from Dr. F. A. E. Crew, Animal Breeding Research Department, University of Edinburgh, March 10th, in the *Brit. M. J.* 1: 515, March 15, 1930.

### Biological Standardization of Drugs

The fourth annual report of the pharmacological laboratory of the Pharmaceutical Society contains a summary of the results of a number of investigations which are of great interest to the medical profession. A considerable part of the biological standardization carried out in this country has been centralized in these laboratories under the direction of Dr. J. H. Burn, and as a result it is possible to obtain information about the amount of variation in the material tested. These results furnish striking evidence of the importance of biological standardization. For example, the result of testing nine samples of strophanthin was to show that the strongest had two and a half times the physiological activity of the weakest. Since strophanthin is intended for intravenous injection, it is obvious that variation on such a scale is a matter of serious importance. It is fairly generally known that liquid extract of ergot made according to the directions of the current *British Pharmacopœia* is inert, but the



report shows that the method laid down in the United States Pharmacopœia is also unsatisfactory. This method produces an active preparation, but unfortunately half the activity is lost within two or three months, even under the best conditions of storage. The problem of preparing a satisfactory extract of ergot is therefore still unsolved. Tetra-iodophenolphthalein sodium is a drug which is finding increasing use, but the toxic effects it sometimes produces are a serious problem. Toxicity tests have shown that some samples of the drug are nearly 50 per cent more toxic than others. The need for the biological standardization of certain drugs is now generally recognized, but these examples indicate new applications for this method. The increasing use of potent drugs in doses sufficient to produce a full physiological effect seems likely to reveal an increasing need for supplementing tests of chemical purity with tests for physiological activity. The second part of the report deals with the work of the nutrition department, which has conducted a large number of routine tests, chiefly for the estimation of the vitamin A and D content of preparations. Quantitative estimations have yielded the interesting result that the best samples of milk have only a five-hundredth the vitamin D content of a good average sample of cod liver oil. The anti-rachitic action of 20 drops of cod liver oil is therefore equivalent to that of at least a pint of good milk.—*Brit. M. J.* 1: 507, March 15, 1930

### Industrial Diseases and Compensation

Compensation for industrial diseases as distinguished from compensation for accidents is of comparatively recent origin. Its introduction has opened to the compensation tribunals a field of obviously vast importance and extent, which is also of great complexity. To determine the extent of a disability and its true cause is frequently enough a matter of real difficulty even in cases where the disability is claimed to have resulted from an accident; immeasurably more difficult is it likely to be where the alleged cause is a disease, devoid of acute clinical symptoms; of non-bacterial origin, with no pathognomonic sign or symptom the very existence of which it may be difficult to determine with confidence.

It is relatively simple to get x-ray proof of a broken arm, and the injured person will in due course get the compensation due him under the law. While there may be some question as to the exact termination of the disability—particularly in a neurotic worker, who is perhaps subconsciously not over-anxious to return to work—the original condition is well established and no one questions the fact that he broke his arm.

When we turn from the field of industrial accidents to that of industrial diseases, we find that those diseases which are of bacterial origin usually offer little more diagnostic difficulty than do injuries caused by accidents. Thus, if a wool-sorter develops anthrax, or a butcher develops ring-worm, the diagnosis can be clinched by actually isolating the offending organism, and there can be no dispute about it. The same holds true in the case of almost any of the industrial diseases of bacterial or parasitic origin.

Unfortunately, however, in the case of the great number of industrial diseases which are chemical rather than bacterial in origin, the diagnosis is far more difficult. This is due to the fact that the specific chemical substance to which a worker is exposed is not usually such as to make him ill at the outset. Indeed, he may feel no ill-effects whatever of his exposure for many months, or even for years. Nevertheless, if the substance is poisonous, a time may be reached when he has absorbed so much of it into his system that he may begin to appreciate that he is not feeling well. This sense of a lack of wellbeing may not be acute, at first. Nor will the symptoms of which he complains be characteristic necessarily of any particular disease. He may have a headache, constipation, or a stomach ache, for example. And, if he consults a physician, the latter may be hard put to it to ascertain the cause. It might be due to lead poisoning, for example, or to any of the conditions responsible for those same symptoms in those of us who have never been exposed to lead.

Let us consider lead poisoning, for example, since it would be manifestly impossible to discuss individually the diagnostic and compensation problems arising from exposure to all of the many industrial poisons met with in work. Among the limited number of industrial diseases which the legislature of the State of New York now regards as compensable under the Workmen's Compensation Law, lead poisoning is easily the most important. The proper solution of the problems arising from claims of disability or death alleged to have been caused by lead poisoning is thus of especial importance to us, not only from the standpoint of the number of cases involved, but also because its solution must have a large influence upon the proper development of the law, and upon the procedure of compensation for occupational diseases generally.

Perhaps no other industrial disease has been the subject of so much study as has lead poisoning. Indeed, there is no other industrial disease whose physiological and chemical effects upon the body are better understood. It is a very natural assumption, therefore, that if a man contracts lead poisoning in the course of his occupation, he will receive compensation. It may be a surprise to many, therefore, when it is

stated that as matters stand to-day such is not necessarily the case. He will receive compensation only if it can be proved to the satisfaction of the compensation tribunal that he has lead poisoning. Obviously, if we are unable to establish the diagnosis, the fact that we are sufficiently enlightened to include poisoning by lead among the diseases for which we grant compensation does not help the individual in question in the least; nor does it give those who are keenly interested in the equitable administration of the Compensation Law the peace of mind which they desire. In other words, the ultimate success or failure of the Compensation Law, as applied to industrial diseases, is the last analysis essentially dependent upon accuracy of diagnosis, and a corresponding ability to prove that the diagnosis made is a correct one. The growing importance of the laboratory as an aid to diagnosis is not fully appreciated at the present time.

Despite all that is known about lead poisoning at the present time, its diagnosis in all but its acute or advanced stages is still beset with difficulties, both because of the indefiniteness of many of the symptom complexes,—as already illustrated in the case of the lead worker with a stomach ache—and because medical authorities have differed in their interpretation of some of the terms used. The voluminous literature on the subject shows that authorities have apparently disagreed for generations as to what should properly constitute a diagnosis of lead poisoning. Some consider that no case should be diagnosed as lead poisoning in the absence of lead colic. Others take the position that no case should be diagnosed as lead poisoning in the absence of stippled cells, and still others hold that the presence of stippled cells in the blood is, in itself, sufficient for a diagnosis, even in the absence of all clinical manifestations of the disease—in other words, even in the total absence of symptoms. Innumerable intermediate positions have been taken by as many different medical men. These differences of opinion are usually due to lack of definition of the term "Poisoning" rather than to any fundamental differences in the medical interpretation of cases. Nevertheless, such a lack of standardization of terminology in connection with a disease entity which of necessity presents true difficulties in diagnosis, because of the indefiniteness of the clinical picture, must unavoidably cause considerable difficulty for those charged with the administration of the Compensation Law. Such is the case at the present time.

It will be remembered that the absorption of lead into the body may result in the production of a great diversity of symptoms referable to almost every organ in the body. These symptoms need not necessarily differ in any respect from those produced by other diseases affecting the same organs. At the outset, therefore, the

compensation tribunal is faced with the fact that the disability resulting from exposure to lead may manifest itself only in such subjective symptoms as headache, dizziness, and general malaise. There is no way of establishing with certainty in these cases whether or not the claimant is actually experiencing the sensations of which he complains. Yet, if he is, he may be just as truly disabled as if he displayed the most convincing of objective signs, i.e., those which can be elicited by the ordinary routine examination. In these cases, therefore the usual processes of inquiry must be reversed. Instead of inquiring first whether disability is present, we must first inquire whether lead poisoning is present, and if so in what form and degree. These questions answered, it is possible to draw from the resulting picture a useful inference as to whether or not the disabling sensations described by the claimant are attributable to this cause.

As has already been pointed out, however, the term "Lead poisoning", as used in the law, is wholly lacking in standard definition of general acceptance. The Bureau of Industrial Hygiene both alone and in co-operation with committees of the American Public Health Association is aiming towards a standardization of diagnosis and terminology, not only in this very important and perplexing disease but in others of chemical origin where the need for such standardization is equally great.—May R. Mayers in *Indust. Hyg. Bull.* 1: January, 1930.

#### Should Medicine Be a Mendicant

The day when the voluntary hospitals offered little beyond food and shelter to the sick poor is long past; since they grew to be institutions where sick persons are treated—and even on occasion healed—much of the virtue has gone out of their position as objects of charity. Such at least is the opinion of Prof. E. W. Hey Groves, who, in delivering on March 13th the Harveian lecture at the Harveian Society of London, spoke with considerable distaste of the proficiency in the art of begging to which the voluntary hospitals had attained of late years. Never had donations to hospitals been so lavish, and yet all the large voluntary hospitals were in debt, depending on "maudlin advertisement and the undignified clowning of students in the streets" to keep them open. He described the methods used as mendicancy, but by the end of his enumeration they had assumed the proportions of highway robbery. That students do not consider a hospital collection to derogate from their dignity, and that the public is placidly amenable to this financial bludgeoning he thinks beside the point. Certainly there is no escaping from the fact that the present system leads to duplication of expensive apparatus in all the

large hospitals, and that the demands of scientific medicine for elaborate equipment increase yearly. This is responsible for the enormous expenditure; the requirements of a well-organized hospital have reached a complexity which it is beyond the powers of philanthropy to satisfy, and the testimony of failure lies in the long lists of those awaiting treatment. Even a patient with malignant disease may wait months for a bed, while a man with a comparatively trivial disability will be kept from his work for an indefinite period, costing the public unnecessary sums for his maintenance. Already hospitals have to be provided by the State for classes of ailment which cannot be accommodated by the voluntary hospitals, such as fevers, mental and venereal diseases.

In the past, said Mr. Hey Groves the poor-law hospitals had not pretended to compete with the voluntary hospitals, either in equipment or staff. Under the new Local Government Act the London County Council would no doubt bring the equipment of certain hospitals up to date, but that would not in itself be sufficient to bring them into line with the voluntary hospitals unless their staffs were correspondingly augmented. The treatment of a consultant on the staff of a general hospital at the present time amounted, he said, to exploitation; the hospital consultant was attending the working men and women of one of the richest countries in the world, many of whom were drawn from the middle classes and who paid for their maintenance in hospital. The expenses of a large number of patients were paid by insurance companies, and the only person who remained unpaid was the doctor. The chief argument urged against nationalization of hospitals was that the doctors would require to be paid; the national insurance scheme produced a large surplus every year which might well be employed to defray the cost of hospital attendances, but this would mean that the doctor would receive fees. Is this a waste of money? The man who wished to become a consultant, said the lecturer, unless he had private means, must struggle during his best years to acquire a competence, so that by the time he was successfully established he had lost the taste for research. There is, of course, another aspect of voluntary medical service, and it would be idle to pretend it is quite as quixotic as it sounds, but it is certainly true that the average consultant spends a large part of his working time at a hospital, and there is no real reason why he should go unpaid for it.

Mr. Hey Groves did not content himself with criticism of the position as it stands; he had a constructive policy to suggest.\* By arranging for payment by all patients, except the destitute, according to their means, the cost of apparatus

and maintenance could be covered, and fees could be paid to the physicians and surgeons attending the cases. The cost of new buildings and extension of accommodation should be met by a State subsidy, without State control. A central governing body should be formed to co-ordinate the work of the voluntary and municipal hospitals in order to prevent duplication of apparatus, and to organize the greatest mass efficiency with the least possible expenditure. The cottage hospitals, particularly, should be affiliated to some larger hospital, so that operations and treatment beyond their capacities would never have to be undertaken by general practitioners in outlying districts. All this could be accomplished by an extension of the insurance system, and a demand for reform should come first from the medical profession. But nothing, he concluded, could be done until the sentimental idea of the voluntary system had been abandoned—an idea so false that the very name was ironical.—*The Lancet* 1: 634, March 22, 1930.

#### The Cost of Hospitalization

Again and again in recent years hospital boards, administrators and executives generally have been stirred to resentment at the charge that the cost of hospitalization was excessive because of unbusiness-like administration, waste, and similar factors. The whole question of hospital costs is muddled for the simple reason that hospitals, dealing with the sick, with the poor, even with unconscious people, cannot contract on entrance, as does a hotel, for a certain type of service at a certain price. The hospital takes the patient, like a bride, for better or for worse, and from the hospital point of view it is usually for worse. The patient's delusions of grandeur on entrance are soon dissipated by rapidly mounting bills for a variety of necessary services, and he soon finds himself confronted with a situation demoralizing to both his pride and his pocketbook. Thus the patient with a private room decides to try temporarily the two, four or twelve bed ward and thereafter decides to suffer starvation after recovery rather than discomfort or minor annoyance during illness. These observations, trivial in the consideration of the well, loom large in the perspective of those who are sick.

During the last few years, as can be determined by consulting the files of any of the periodicals devoted to problems of hospital administration, there have been innumerable studies of hospital costs made by the hospitals themselves. Even discounting greatly the fact that these studies have been made by interested observers, it seems obvious that hospital costs have not risen proportionately to the cost of living in general, and not nearly proportional

\* See also *The Lancet* 1: 251, 1928.



to the increased demands made on the hospitals by the changing status of labour, or by the advance in the science of the practice of medicine. More than two-thirds of the hospitals in the United States now have fully equipped roentgen-ray and laboratory services, and more and more hospitals are constantly being supplied with fully developed departments for physical therapy.

A study made of bills rendered in one hundred hospitals by John A. McNamara and James S. Parker shows that the average bill for the first ten thousand full pay patients during the present fiscal year was \$71.99, that the average duration of stay per patient in fifty-two of these hospitals was 11.04 days, and that the average hospital bill is much less than the average patient of moderate means spends for many of the luxuries that are common to-day. The very people who accumulate vast amounts for Christmas savings which are dispensed for trifles during a holiday week, who pay regular instalments for pianos, automobiles, radios, electric refrigerators, jewelry and fur coats, because of the appeals made to them through advertising, find themselves unprepared when the illnesses which they should know are inevitable come on them. The answer to the question of the cost of medical care is not to be found in singling out the doctor, the hospital, the laboratory or the employer as the responsible party. The health of the human being is intimately associated with housing, food, transportation and fuel, and his care in disease is likewise associated with innumerable other economic factors. Perhaps when the answer is found the solution will be on the doorstep of the patient himself.—*J. Am. M. Ass.* 94 186, Jan. 18, 1930.

### The Preparation of Scientific Papers

For those who have something to say on a scientific topic, and wish to put it in good form, there is nowadays no lack of guidance. Sir Clifford Allbutt's admirable book on the composition of scientific papers<sup>1</sup> should be read and re-read. Though mainly concerned with words and phrases, the purpose of this little medical classic is "literary only so far as to insist on the qualities of precision, clearness, and definition." The would-be medical author's education is incomplete until he has digested Allbutt's *Notes*. Much good advice, technical and general, will be found also in a book by Dr. G. H. Simmons and Dr. Maurice Fishbein,<sup>2</sup> which

presents the fruit of long experience in the editing of medical periodicals. There is also Mrs. M. H. Mellish-Wilson's small manual on the preparation of medical papers,<sup>3</sup> and Sir Humphry Rolleston's pamphlet on the writing of theses for medical degrees.<sup>4</sup> All these first-aid primers are, we believe, still in print, and if they were better known we should have less cause to regret the "curious disregard of the literary amenities displayed by a large number of members of the medical profession who send communications for publication." Another pamphlet, covering part of the same ground, was drawn up some years ago by the Medical Research Council with the object of persuading authors to keep the cost of publication of reports down to the lowest figure. A revised edition of these practical notes on the preparation of scientific reports has now appeared;<sup>5</sup> it is not being placed on sale, but a wide distribution has been made by the Council among research workers in the medical field. The advice given is based on experience gained in the production of more than 130 numbers of the Special Report Series. Before proceeding to small points of detail, the Council in this new edition urges that no effort should be spared in reducing the length of scientific papers and reports to the smallest compass consistent with clarity and effectiveness. Medical editors generally will agree with the Council that in the revision of manuscripts submitted to them a 10 to 20 per cent reduction in length can very often be effected "by attention to arrangement of matter and by avoiding redundant or duplicated sentences. Brevity can also be gained by using short English words in the place of longer words, often of Latin origin, or of groups of words." A string of examples to illustrate this point is given in an appendix. We are aware that clarity and brevity are not necessarily the same thing, but the scientific effect and literary form of a paper can always be improved by clearing away "the litter of idle words." Why write "a considerable amount of" when "much" is meant? Every medical author should learn to use the pruning knife. "A 10 per cent reduction in the size of every paper would mean an equivalent gain in space for every library in the world, as well as in the time of all the readers concerned."—*Brit. M. J.* 1: 29, Jan. 4, 1930.

1. *Notes on the Composition of Scientific Papers*. Third edition. 1923. London: Macmillan and Co., Ltd. 6s. net.

2. *The Art and Practice of Medical Writing*. 1925. Chicago: American Medical Association (535, North Dearborn Street).

3. *The Writing of Medical Papers*. Third edition, 1929. Philadelphia and London: W. B. Saunders Company. 7s. 6d. net.

4. *On Writing Theses for M.B. and M.D. Degrees*. Second edition. 1925. London: John Bale, Sons and Danielsson, Ltd. 1s. net.

5. *Notes upon the Preparation of Reports for Publication*. Revised edition. 1929. Medical Research Council (38, Old Queen Street, S.W.1).



### An Austrian Thaumaturgist

Our Vienna correspondent tells us of the widespread fame as a wonder-healer achieved by a man named Valentin Zeileis in the small village of Gallsbach in Upper Austria. Zeileis, who is now 56 years old, is a former peasant, who has been experimenting with electricity from his boyhood, and has for 20 years past had wide vogue among his brother peasants. Now hundreds, even thousands, of patients are flocking daily to his offices, where they have to disrobe *coram publico* and are seen by the "doctor" (as he is called) simultaneously in groups of 10 to 15. The great man uses a "diagnostic rod," being a glass tube containing radium emanation through which is passed a powerful high-frequency current. This rod or wand is moved over the body of the patient until it becomes fluorescent over any diseased or abnormal part. There is no doubt about the fluorescence, for the patient can see it, but its provenance is obscure to everyone but Zeileis himself. The treatment is then ordered. This consists chiefly of electro-static, high-frequency current, or hard x-rays applied several times within a minute or two, or some combination of these with radium. The course of treatment lasts for 10 days or a fortnight, sometimes longer, when, our correspondent is assured, many patients who have already suffered at the hands of their own medical men return home relieved of their troubles. . . . Naturally all sorts of sufferers, medical and surgical, come to seek Zeileis's advice, and he is shrewd

enough to recognize where suggestive treatment will be useless or harmful, sending some away and sending others to medical men who believe in him, or at least affect to do so. Ethically the situation is interesting, for Zeileis's eldest son, who is working with him, has obtained the degree of M.D. in Austria, which, our correspondent says, makes it impossible to charge the father with quackery, as has been done on several previous occasions. When these cases came before the Court, numbers of staunch believers, of cured patients, and even of medical men, supported Zeileis's claims, with the result that he has remained unmolested since. He charges no fee for his services, but is always offered a trifle. Lately, in response to vehement attacks from the medical side, he has publicly disclosed the nature and technique of his electrical treatment, as briefly outlined here, and no doubt his experiments will be repeated in other quarters. It seems to be admitted that he and his assistants have had good results in some grave cases. In the last stage of this remarkable story Zeileis and his son have built an enormous institute in Gallsbach, fitted up on the most up-to-date lines, in which 6,000 patients can be treated a day. Here not only electrical but also other kinds of physical and hydrological treatment are given. Our correspondent remarks, in conclusion, that the flocking of ill persons to such centres is an indication that current medical knowledge does not (in Austria) completely satisfy the needs of suffering mankind.—*The Lancet* 1: 196, Jan. 25, 1930.

## Medico-Legal

### ALLEGED NEGLIGENCE AT OPERATION CROTCH *v.* MILES

#### VERDICT FOR THE DEFENDANT

An action for damages for injury alleged to have been received during operation was brought by Miss Martha Harriet Gordon Crotch of Venice, near Nice, against Mr. W. Ernest Miles, surgeon, of Park Crescent, N.W., and occupied the Lord Chief Justice and a special jury on March 13th and four following days.

Mr. J. W. Morris and Mr. W. A. Davies, instructed by Messrs. Churchill, Clapham and Co., appeared for the plaintiff, and Mr. Rayner Goddard, K.C., and Mr. H. C. Dickens, instructed by Messrs. Hempsons, on behalf of the Medical Defence Union, for the defendant.

#### *Case for the Plaintiff*

Mr. Morris, in opening, said that the allegation of the plaintiff was that, after an operation on November 27, 1920, for the removal of a

fibroid tumour, Mr. Miles left in her abdomen a pair of forceps, 5 inches long, which was not discovered until an x-ray examination revealed its presence eight years later. After the operation in 1920 the plaintiff's life was one of continuous ill health, with a tragic succession of serious illnesses. Soon after operation a swelling appeared near the incision, and in May, 1921, she saw the defendant, who told her not to worry, as the swelling was the result of an injury to the muscles of the abdomen consequent upon the operation. In 1922 she went to India on family business, and was there ill and went into hospital. In 1925 she went to France to engage in a perfumery business, but was again ill, and had to give it up, and in February, 1926, in the South of France, where she had taken an antique shop, she was so ill that she was sent to a clinic at Nice, where an operation was performed for the removal of gall-stones. In August, 1928, still suffering, she consulted a doctor in Nice, and an x-ray photograph was taken, revealing the presence

of the forceps, which necessitated a third operation. Since then she had suffered no pain.

Miss Croteh, in evidence, said that soon after the operation of 1920 she felt sharp pain in the abdomen. No organ of her body seemed to function properly. Pains of a distressing character made her life a misery. Medical men in India and France examined her without success. In 1922 she had a metallic taste in her mouth as if she were sucking rusty nails. She claimed special damages, amounting to £1,370, including payment for her gall-bladder operation, because she maintained she would not have had gall-stones if she had not been a sick woman by reason of the forceps.

Dr. R. H. E. Stevens testified to having been consulted by the patient on several occasions in 1921-23. She complained of a pain low down in the abdomen and swelling in the middle line, and attacks of nausea and sickness. He attributed it to ventral hernia following the operation.

The evidence of certain medical men, taken on commission in France, was read. Dr. Louis Prat of Nice testified that he operated on the plaintiff in June, 1926, at the Belvedere Clinie, and removed the gall-bladder, which was much diseased. He dealt only with the local condition, and did not explore the abdomen. He noticed a sort of rupture with a swelling or hard mass where the previous operation had been performed. The forceps, as shown in the x-ray photograph, was not in the region of his operation, nor did he use forceps of the type which was found. He admitted that nobody counted the instruments or swabs at his operations. His forceps were hinged, not screwed, as were the buried forceps. Dr. D. Maestracci of Venice stated that he examined the plaintiff in September, 1928, when she complained of severe abdominal pains and a persistent metallic taste. He was present when the operation for the removal of the forceps was performed. The forceps, which was removed from the small intestine, was rusty, and had lost all trace of nickel plating. Dr. Henry Fay of Nice, who performed the operation, said that the small intestine had to be cut to remove the forceps, which was coated with matter.

#### *Case for Defendant*

Mr. Goddard raised the legal point that the action was barred by the Statute of Limitations because it was instituted more than six years after the alleged negligence, to which Mr. Morris replied that the plaintiff had displayed no lack of diligence in bringing her action, that the defendant had committed trespass upon the body of the plaintiff by leaving his forceps inside after operation, and that the trespass continued until the forceps was removed. The legal point was postponed until the evidence was

completed, it being intimated that the defendant was desirous of giving his explanation.

Mr. Goddard said that one of the vital witnesses for the defence, the theatre sister present at the operation, was dead. It was on her that, in the patient's own interests, the surgeon should rely for the counting of instruments rather than delay the operation.

Mr. Ernest Miles, in evidence, said that although he had performed hundreds of operations since, he still had a slight recollection of this one, because the anaesthetist advised him to complete it as quickly as possible on account of the collapsed state of the patient. He always took the same number of instruments with him for every abdominal operation, unless special instruments were required, and to simplify counting he had them in threes and multiples of three. At the theatre he always counted his instruments out to the sister, and after operation the sister counted the instruments and swabs. If one was short a search would be made; sometimes one was found hidden in a towel. For the surgeon to hunt round for missing instruments or swabs would be to expose the patient to risk by delaying the operation. He had never lost a pair of forceps in the whole of his career. He produced the six forceps which he was using at the time of this operation. On every pair were the letters "H.S.I." (Holborn Surgical Instrument Company). The forceps found in the plaintiff's body bore only the letter "H," which appeared where the "S" was on each of his instruments. He had never used forceps of the type found in the plaintiff's body for an operation of that kind.

In cross-examination, Mr. Miles stated that he took out a number of Spencer Wells forceps when he went to France at the beginning of the war, and some of them were exchanged for others which he received when the hospital disbanded. He agreed that the removed forceps were of the type he had used some years ago, before he substituted stainless steel for nickel-plating, but he could not identify this instrument as one of his own. Asked by the Lord Chief Justice whether, if the buried forceps had been used for removing the gall-bladder it could have travelled down to the position in which it was found, he said that he thought so. In his view, judging from the x-ray photograph, the instrument was not found in the small intestine; it was in between the coils.

Dr. H. R. Wadd, medical superintendent of the nursing home where the operation was performed, said that he acted as Mr. Miles's assistant on that occasion. The theatre sister was very competent. He added that he had himself seen any number of Spencer Wells forceps for sale in France, and had himself bought some in Bordeaux and Paris four years ago.

Sir Hugh Rigby testified to Mr. Miles's repu-

tation as a careful and skilful surgeon, one of the few who themselves counted their instruments after an operation. Usually a trained nurse attended to this duty.

Sir Thomas Horder said that he had known Mr. Miles for twenty-five years; his methods were those of a careful surgeon. Asked whose duty it was to check the instruments and swabs, Sir Thomas Horder replied that it was the theatre sister's, but he regarded the surgeon as ultimately responsible. Asked what would be his opinion of a surgeon in some country who said that nobody counted the forceps or the swabs, he said that he would not engage such a surgeon to operate on one of his patients. He also said that if forceps was left in the abdomen of a patient he would not expect an external lump to appear unless an abscess formed after a considerable time, and he could not think that a lump the size of a coconut, which the plaintiff said appeared in her abdomen in the neighbourhood of the scar two or three months after the operation, could have been caused by the presence of forceps.

Nurse Kingman, who was present at the operation in 1920, testified to the carefulness of the late Sister Brown, who regarded it as a "sacred duty" always to count the instruments. Mr. H. E. G. Boyle, anaesthetist, said that he had learned many years ago from Mr. Miles of his plan of having his instruments in multiples of three, which he thought excellent. Dr. J. S. Burn, who administered the anaesthetic for Mr. Miles, said that he had never known Mr. Miles fail to count his instruments after an operation. He added that he had seen English-made instruments, surplus army stores, sold in France after the war.

Mr. Goddard, in his speech for Mr. Miles, said that Mr. Miles had evolved a system as near perfection as anything could be to get rid of the human element. During the actual operation it was reasonable and proper that the counting should be done by the sister-in-charge, but that did not free the surgeon from seeing that his instruments were right after the operation. He asked the jury to contrast the care which Mr. Miles had shown with the admitted practice of French surgeons in not counting their instruments.

The Lord Chief Justice: Dr. Prat went further than that; he said, "Nobody counts."

Mr. Morris, in his address to the jury, said that his learned friend had almost appealed to the jury not to find a verdict against someone who was a member of the medical profession. He would have thought, on the contrary, that once one was satisfied that it was at Mr. Miles's operation that the forceps was left it was in the interests of the medical profession itself that there should be a verdict against Mr. Miles.

### *The Lord Chief Justice's Summing-up*

The Lord Chief Justice, in summing-up, addressed the jury for three and a half hours. He begged the jury not to be misled by the appeal for sympathy on behalf of the plaintiff. The task before the jury was a scientific one, and there the play of emotion was not helpful. With regard to the relevance of the evidence as to French practice, Lord Hewart said:

Let us put the matter the other way round. Suppose that the evidence about the operation conducted by Dr. Prat in France was that for years he had been conducting operations with the assistance of a careful method deliberately designed by himself to prevent an error about the number of instruments or swabs; suppose that Dr. Prat had been able to say, "I have designed a system of multiples of three. I count myself, the theatre sister counts, I check the counting of the theatre sister"; suppose that had been the evidence about Dr. Prat's operation, and when it came to Mr. Miles's turn he had to say, "I never count at all, and nobody counts for me; it is not done," how indescribably stronger the case against the defendant would have been. Now the position is reversed. The evidence of care in counting and of method in counting is the evidence of the defendant and the evidence given on his behalf, and it is conceded that in French operations there is no counting by the surgeon or by another. You may think it right to say that the measure of the additional strength that would have been given to the case against Mr. Miles if the position had been reversed is the measure of the assistance which his case derives from the knowledge which you now have that in the French operation there is no counting.

Lord Hewart then drew attention to the important dates in the case. From some accounts of the case one might think there had been only one operation; in fact, there were two, apart from the third operation to remove the forceps after it had been discovered. The first operation was by the defendant in November, 1920, the second by Dr. Prat in June, 1926, for the removal of the gall-bladder, and the third, for the removal of the forceps, by Dr. Fay, in September, 1928. He would put to the jury three questions:

1. Is it established that the forceps was left in the plaintiff's body in the course of the operation performed by the defendant?
2. If so, was that fact due to negligence on the part of the defendant or for which he was responsible.
3. The question of damages, if it arises.

As to damages, in addition to medical fees and expenses incurred, there was a claim for £500 in consequence of the plaintiff having to leave her Paris business on account of ill health, and a further loss on account of her business at Venice; but this related to the period antecedent to, and following on, the operation for gall-stones. The jury, if the question of damages arose, would have to decide whether these losses were attributable to what was done, or omitted, at the operation in 1920. Nobody denied for a moment that if a forceps was left in the body in the



course of a surgical operation the patient ought to have a remedy in damages against somebody. But the question was whether the liability of this defendant was made out. It was for the jury to say whether it was established beyond reasonable doubt that this surgical instrument was left in the plaintiff's body in 1920 in circumstances which involved the operating surgeon in personal liability.

Lord Hewart proceeded to read passages from the evidence, especially by Mr. Miles, relating to the responsibility of the theatre sister in regard to the counting of instruments, and by Sir Hugh Rigby.

He (Sir Hugh Rigby) stated that in attendance at the operation are the surgeon, the assistant, the theatre sister, generally two nurses, and the anaesthetist, that the theatre sister is responsible for the instruments and their sterilization, the towels, and the swabs, and that she is very highly trained for this work. Sir Hugh Rigby said: "In our country she is something quite apart. She is specially trained for this duty, and has responsibilities which sisters in other countries are not given because they are not trained. I do not think one person can be responsible for all the details of the operation. The duty of counting instruments or swabs falls, according to the usual practice in this country, upon the theatre sister." Then came this passage, of no little importance in this case: "If the sister finds that she has not the right number she tells me. If I hear nothing I take it that all is correct. It is very seldom that I myself inquire. If I were working in a strange place or did not like the look of the sister"—he explained what he meant by that, that if he did not feel confidence in her—"I might do so." . . . He (Sir Hugh Rigby) went on to say that the standard of care in this matter of enumeration which was set and observed by the defendant was a standard higher than the ordinary, and a standard to which the ordinary surgeon could not be expected to attain."

The jury might think it right to draw a distinction between what was done in the course of an operation and what was done immediately at its close. It might well be that in the actual course of the operation it was not to be expected nor desired that the surgeon should be busying his mind with the counting of instruments or swabs, but that other considerations applied at the close of the operation, and that before the surgeon departed it was reasonable that he should personally satisfy himself that the number was correct, and that there was nothing missing. Mr. Miles said that he did that. Sir Hugh Rigby said that it was not usual, and he himself did not do it. These were material points with regard to the second question he had put to the jury, but that question did not arise unless the jury was satisfied that the forceps was left in the body of the patient in 1920. This was not quite a simple question. He quoted the words of Lord Chief Justice Tindal a hundred years ago, but unimpaired in their effect: "A person entering a learned profession undertakes to bring to the exercise of it a fair, reasonable, and competent degree of skill." Skill must be ac-

companied by diligence. Was it part of the duty of the surgeon personally to count the instruments and satisfy himself that the number was correct, or was he entitled to say that a skilled theatre sister was present, and that this was her job? She was not his servant; she was one of a team.

Turning to the main question, after reminding the jury that the burden of proof was on the plaintiff, and that it was not for the defendant to prove a negative, Lord Hewart said that, reviewing the evidence, two things leapt to the eye. The first was one to which he had already referred, that while all this detailed evidence was given as to the care habitually taken by Mr. Miles in checking his instruments, no such care was taken on the other side of the Channel. Everybody knew that some French surgeons were men of the highest degree of skill and enterprise. But in France it was not only that the surgeon himself did not perform this duty; nobody performed it. This type of accident was very rare. In more than thirty years' experience of the law he himself had never known a case of the kind. But if there was no counting by the surgeon, or by anybody on his behalf, was it difficult to understand that such a thing might conceivably happen? Lord Hewart explained to the jury the function of the forceps at operation, how it held the bleeding points until the ligature was applied. A row of forceps might be employed for an appreciable time, and when removed, if there was no counting, and especially if the patient was rather stout, the loss of a pair was a thing which might possibly happen.

The second thing which leapt to the eye was the remarkable contrast in the plaintiff's evidence as between the amount of medical testimony relating to 1926 and afterwards and the paucity of such evidence during the period from 1920 to 1926. Lord Hewart recapitulated the plaintiff's story. During the five and a half years between Mr. Miles's operation and that performed by Dr. Prat, when, according to this story, she was going about with this forceps in the lower part of her abdomen, what did she do? In July, 1922, she went to India, returning in April, 1923, and going again to India in October of that year. In 1925 she went to Paris to undertake the starting or resurrection of a perfumery business, and in January, 1926, left Paris for Cannes, and took a pottery shop at Venice. There she became ill, and an operation for gall-stones was performed at the Anglo-American Clinic at Nice. The forceps was removed in September, 1928. It would have been interesting to know what was said by those who removed it, and whether attention was then pointedly drawn to the fact that it was a screw forceps, and not the sort of forceps which the French surgeons commonly used, although it

was stated that thousands of such forceps were used in France during the war.

There is no kind of recollection (said the Lord Chief Justice) so misleading as controversial recollection, and of all kinds of controversial recollections the least trustworthy are those which are fortified by a feeling of indignation. If any member of the jury has had an illness spread over a considerable period in some form or other, he will find that it is extraordinarily difficult, looking backwards, to be very precise about his symptoms at any particular period, especially if the trouble is of a kind which gives a diffused pain. We have been told that when the gall-bladder is affected a very common accompaniment is a flatulent dyspepsia, capable of causing great pain and discomfort, now here, and now there, a little difficult to locate. How difficult it is for a person who has suffered in that way, looking back over a longish period of years, to say with certainty that his symptoms at such and such a time were these, and not those.

His lordship reviewed the medical evidence, and stressed the long period, including accounts of illnesses in Paris and in India, as to which no medical evidence had been brought. There was, of course, the evidence of Dr. Stevens, relating to 1921-23. Dr. Stevens knew of the plaintiff's operation, and considered that she had ventral hernia, a common sequel to an abdominal operation in a stout subject; he never suggested that it was a case for an x-ray examination to see if there was some foreign body left in the abdomen. How came it that nobody who examined the patient in Bombay suggested an x-ray photograph? The plaintiff said that the lump was always there, about the size of a small coconut. Had any of these medical men suspected the presence of a foreign body would they not have taken steps to make sure? The plaintiff's statement was that the pain continued daily for eight years. Was that an exaggeration? Her expression that she felt as if she were eating rusty nails threw some light on the story, for who knew what it felt like to eat rusty nails? Was it not the sort of picture that would occur to a somewhat imaginative person, in all good faith, looking back after a period of time when she knew that a pair of forceps had actually been discovered? Finally came the operation by Dr. Prat in 1926. The jury might think that when all the surrounding circumstances were considered, together with the actual course of the operation of 1926, the forceps could not have been left in the body in 1920, and must have been the result of the operation five and a half years later at Nice. He then put to the jury the three questions already set out.

#### *Verdict and Judgment*

The jury were absent only ten minutes. They answered in the negative the first question put—namely, "Is it established that the forceps was left in the plaintiff's body in the course of the operation performed by the defendant?"

The Lord Chief Justice thereupon entered

judgment for the defendant, with costs—*Brit. M. J. 1: 620, March 29, 1930.*

#### A DOCTOR'S RIGHT TO CHOOSE HIS PATIENTS

Members of the public sometimes complain that a medical practitioner has omitted to attend on request. As the coroner observed in a recent inquest at Aldershot, a doctor is not obliged to attend a case if he does not want to; he can be criticised if he promises to attend and then fails to do so, but he is perfectly entitled—like any other professional man—to say he cannot attend to a case. The circumstances disclosed at the inquest were perhaps exceptional. On Wednesday, February 19th, the wife of a private in the Army gave birth to twin children, one of which died. She had been taken ill with measles on the previous Monday—a fact which probably brought on premature birth. The husband stated that he called in a doctor on the Monday, who attended and advised him to call in an Army doctor. The Army doctor saw his wife the same day and said that, as it was a case of measles, he could not admit her to the Louise Margaret Hospital; he suggested that the husband should try to arrange for her to have a nurse at home or to go to the infirmary. Early on the Tuesday, when his wife was taken ill, he called at the surgery of a partnership of local doctors and left a message that the panel doctor should call. He had not, however, ascertained who his wife's panel doctor was, owing to his papers coming to him from Dublin. No doctor, in fact, came, and, when his sister went again to the surgery in the evening, the doctor, it was said, refused to come. He went himself to the surgery on the Wednesday morning when one of the doctors there said he could not attend. He also described his difficulties in obtaining a nurse. "I think," he stated at the inquest, "that either one of the doctors should have come; I didn't want them to come for nothing; when you go for a doctor, I think he should come to see the person, and that it is his place to do such a thing, but they refused absolutely to come, and almost closed the door in my face, and I was left there not knowing what to do." The coroner said he did not want to criticise the father who had had a worrying time, but the State provided all sorts of assistance, and the father did not even take the trouble to find out who was his wife's panel doctor. The coroner did not think any blame could be put upon the doctors at the surgery. The cause of the whole trouble was the measles, but for which the mother would have been treated at the Louise Margaret Hospital. A verdict was returned that the death was due to premature birth.—*The Lancet 1: 602, March 15, 1930.*

## Abstracts from Current Literature

### MEDICINE

#### **The Aschoff Nodule in Rheumatic Pneumonia.**

Fraser, A. D., *The Lancet* 1: 218, Jan. 11, 1930.

The occurrence of lung lesions in the acute stages of rheumatic fever has been long recognized, but the pathology has been little investigated, owing to the lack of autopsy material. Two cases of acute fatal rheumatic fever are described and the findings in the lungs and pleurae discussed in detail. The lesion is likened to an acute interstitial pneumonia with a predominance of cell proliferation, oedema, and arteritis with subsequent fibrosis. The opinion that this is associated with the causative agent of rheumatic fever is supported by the finding of typical Aschoff nodules in the interlobular septa and other interstitial structures. Not only the lung itself was involved but the pleurae and the bronchial wall as well as the lining of the epithelium of the air passages. One case showed definite Aschoff nodules in the myocardium, while the other had a patchy fibrosis scattered through the muscle, not localized in nodules.

J. B. Ross

#### **The Treatment of Non-Tropical Sprue with Liver Extract.** Porter, W. B., and Rucker, J. E., *Am. J. M. Sc.* 179: 310, 1930.

The authors report the favourable influence of the oral administration of an aqueous extract of liver on two cases of non-tropical sprue. Both cases were clinically typical of sprue, though in neither case was the *Monilia psilosis* present in the stools. The blood examinations revealed a profound anaemia of the hyperchromic type. In the one instance the erythrocyte level was in the vicinity of one million and in the other half a million cells per cubic millimetre. The average cell was a macrocyte measuring 9.5 and 9.3 microns respectively. The leucocytes were depressed with relative increase of the lymphocytes. Pernicious anaemia could be excluded as both cases had considerable free HCl in the gastric contents and no cord changes were observed.

The clinical course after beginning liver extract therapy was striking. Within five days the complete anorexia was replaced by a ravenous appetite. During the second week the stools became normal. Both patients were discharged well within seven weeks with a normal blood count. The reticulocyte curve and rise in the blood values were, if anything, more pronounced than in a corresponding case of pernicious anaemia. In the one case the reticulocytes rose from 1 to 47 per cent in eleven days,

and in the other from 1 to 37 per cent in six days.

The authors feel that non-tropical sprue is a deficiency disease and not a moniliasis of the intestinal tract.

E. S. MILLS

#### **The Neuropathic Effect in Man of a Diet High in Beef Muscle and Liver.** Newburgh, L. H., Falcon-Lesses, M., and Johnston, M. W., *Am. J. M. Sc.* 179: 305, 1930.

The authors have produced a significant albuminuria and cylindruria by feeding a previously healthy young man on a diet high in proteins over a period of six months. The subject of the experiment was a member of the laboratory staff, aged thirty-two, and normal physically. After a preliminary control period he was placed upon a diet consisting of liver and beef muscle 338 gm., fat 271 gm., and carbohydrate 96 gm. He remained on this diet for a period of six months. The urine was examined frequently for albumin, and the number of casts per hour estimated according to Addis' method.

During the control period the urine contained no albumin when tested by the heat and acetic acid method, and the casts were within the normal limits, namely from one hundred to four hundred per hour. Albumin made its appearance in the urine six weeks after the commencement of protein feeding and gradually increased until the sixth month, when the subject of the experiment was excreting from two to four milligrams of protein per hour. The excretion of casts increased from month to month reaching in the final six weeks the high figure of 3,540 per hour. At first the casts were of the hyaline type, but gradually the granular and finally the cellular ones predominated. Ten days after the conclusion of the experiment the urine had returned to normal. The authors conclude that a high protein régime over a period of years will result in permanent damage to the kidneys.

E. S. MILLS

#### **Abscess of the Lung: A Bacteriologic Study based on One Hundred and Eighteen Cases.** Bucher, C. J., *Am. J. M. Sc.* 179: 406, 1930.

Bucher has investigated bacteriologically the pus obtained from 118 cases of lung abscess in the Chevalier Jackson Bronchoscope Clinic of Philadelphia. In every case the specimen was taken directly from the abscess either by bronchoscopic technique or when the infected area was exposed at operation. The abscesses followed extraction of teeth in 9 cases; tonsillectomy, in 40; surgical operations, in 9; acute respiratory infections, in 16; pneumonia, in 17;



pleurisy, in 1; and were of questionable origin in 23.

The specimens were subjected to staining by Gram's and by Fontana's methods, to dark field examination, to aerobic and anaerobic culture, and in many instances to animal inoculation.

In the individual case usually more than one organism was isolated and occasionally seven or eight were recovered. The organism most commonly isolated was the *streptococcus*; the *hemolyticus* 34 times, the *viridans* 44 times, and the *non-hemolyticus* 15 times. Next in frequency was the *M. catarrhalis*, then the pneumococcus. The *B. influenzae* and the *S. albus* were isolated 41 times and 39 times respectively. Spirochaetes and fusiform bacilli were demonstrable in only 25 cases.

The author concludes that it is not possible ordinarily to pick out any one organism as causing the abscess; that the organisms commonly found in the abscess cavity are those found normally in the mouth and in the upper respiratory tract.

E. S. MILLS

**Note on a Family with Brachydactyly.** Marshall, R., *Arch. Dis. Child.* 4: 385, 1929.

The defect reported by Marshall is of the type in which the middle phalanx of the fingers and toes is missing. He states that cases of brachydactyly are rare in English literature. In his family there were 4 generations, comprising 17 persons of whom 7 were affected. A man, his mother, aunt and uncle, his grandmother and her sister, and his great grandmother, all had brachydactyly. This pedigree illustrates well the dominant or direct type of inheritance, no unaffected person having had affected offspring. This type of inheritance is the one usually shown in this condition.

MADGE THURLOW MACKLIN

**Hereditary Hypertelorism without Mental Deficiency.** Montford, T. M., *Arch. Dis. Child.* 4: 381, 1929.

This condition of excessive width between the eyes is due to a maldevelopment of the sphenoid, the greater wings of which remain small and the lesser wings undergo marked hypertrophy. Montford reports this condition in a mother and daughter. The infant son, second child of the family was normal.

This record is of interest since there are few cases of the condition on record. Reuben and Fox (*Arch. Ped.* 45: 105, 1928) report a child and 2 first cousins, children of different parents, who showed hypertelorism. From the photographs of the latter three cases, it is evident that there may be different grades of this malformation which range from a physiognomy so near normal as to cause no comment to one that is essentially abnormal. It may or may not be associated with mental deficiency.

MADGE THURLOW MACKLIN

**Familial Congenital Spastic Diplegia.** Powdermaker, F., *Am. J. Dis. Child.* 39: 148, 1930.

The author reports the occurrence of familial congenital spastic diplegia in three boys, the 3rd, 4th, and 6th children in a family of 7, in which the parents, 11 uncles and aunts, numerous first cousins and the grandparents were all normal.

There was no evidence of syphilis, trauma at birth, or change in health of the mother during pregnancy to account for the condition. The author suggests that although no direct proof is obtainable there is the possibility that this disease is dependent upon a defect in the germ plasm, dependent upon a Mendelian recessive factor.

MADGE THURLOW MACKLIN

**Familial Hemolytic Anæmia of Childhood, von Jaksch.** Wollstein, M., and Kreidel, K., *Am. J. Dis. Child.* 39: 115, 1930.

These authors report a series of cases of anæmia in childhood, which have in common the following points: pallor, low hæmoglobin ranging from 18 to 45 per cent, reduction of the red blood cells, ranging from 1,500,000 to 3,500,000; increase of leukocytes, from 9,000 to 50,190; nucleated reds from 7 to 207 per 100 leukocytes; normal fragility of the red cells; normal platelet count, with one exception which was temporarily low; and urobilinogen increased in stools and urine in the 4 cases in which it was studied, spleen enlarged greatly; and a fatal outcome in all cases but one.

This picture was altered as follows after splenectomy. There was a definite and progressive increase in the nucleated red cells, most of which were normoblasts; they ranged from 148 to 2,016 per 100 leukocytes. In two patients, who survived splenectomy for four years, the nucleated red cells became more immature as well as more numerous. The hæmoglobin and the red blood cells continued below normal, the leukocytes diminished but little, and the monocytes showed a temporary increase. The spleen was from 4 to 10 times its normal weight at autopsy; supernumerary spleens were present in 4 of 5 patients, and the spleen on section showed a thickened splenic reticulum, iron pigment in the sinuses and their walls, mild general fibrosis, myeloblasts, eosinophilic myelocytes and nucleated reds.

The long bones and the flat bones of the skull are altered. The familial occurrence of this condition was marked in this series. There were 2 brothers in a family in which 3 other children had died of a disease similar to theirs; in the second family there were 2 brothers and a sister affected, 2 others were normal; and in a third family 2 brothers had the disease.

MADGE THURLOW MACKLIN

**The Age Incidence of Tumours in Mice and Its Inheritance.** Turdeen, L., and Loeb, L., *J. Cancer Res.* 13: 1, 1929.

For the most part strains of mice in whom the tumour incidence was high showed the tumour at an earlier age than those strains in which the tumour incidence was low. In other strains the tumour age could be dissociated from the tumour rate, hence these were thought to be due to two separate genetic factors. Crossing strains in which the tumour incidence was high and the age early with those in which the reverse conditions held would result in offspring some of which resembled one or the other parent, some of which exhibited a cross inheritance.

These findings are of interest from the standpoint of human families, in some of which the age for tumour growth is extremely early, as in Warthin's family, in which some of the members died of gastric carcinoma about the ages of 25 to 30.

MADGE THURLOW MACKLIN

**Prison Epidemic of Flexner's Dysentery.**

Stanley, L. L., Gurfinkle, F. E., and Goddard, W. P., *J. Am. M. Ass.* 94: 857, March 22, 1930.

Interest in dysentery has recently been renewed by the assertion that a considerable percentage of the population of the United States, in all geographic areas, is probably infested with *Endamæba histolytica*, and is further whetted by occasional reports of dysentery caused by the bacillus of Flexner. The authors of the article under review report an epidemic of this latter type of dysentery which occurred in August of last year at the California State Prison, San Quentin. In a population of 4,226 prisoners, 946 were attacked. All cases developed within a period of eight days. The condition was attributed to infection of bread by a prisoner engaged as a waiter, whose stools gave positive cultures. All cases developed among those who ate at the mess served by this prisoner. Bread smeared with a culture of the Flexner bacillus and left in the air at room temperature yielded positive cultures for eleven days. The usual course of the disease was from three to four days. The bacteriophage was used in the treatment of 80 cases, but results were not definitely better than when other treatments were used.

W. H. HATTIE

**Viosterol (irradiated ergosterol) in the Treatment of Parathyroid Tetany.** Brougher, J. C., *J. Am. M. Ass.* 94: 471, Feb. 15, 1930.

This article supplements some previous study on the value of cod liver oil in tetany occurring in cases deficient in parathyroid secretion. Viosterol, a more advanced product, after being administered to dogs, has lately been used in

human beings suffering from tetany from the above cause.

The author reports five cases, four showing a deficiency of parathyroid secretion and one showing symptoms of tetany after gastro-intestinal disease. Two patients after thyroid operations rapidly developed restlessness, muscular twitchings, carpopedal spasm, and insomnia, with a positive Chvostek sign. Treatment with calcium and parathyroid extract-Collip was unsuccessful; cod liver oil and yeast relieved the symptoms, and, later, viosterol produced further improvement, which was maintained while it was used. Two other cases had somewhat the same symptoms, plus numbness of the hands and feet associated with pregnancy. They managed quite well under viosterol.

The other patient, after operations for intestinal obstruction, and similar abdominal disturbances, had a deficiency associated with a chronic diarrhoea. She was greatly helped by viosterol. There seems no doubt that the results from these cases are reliable and most helpful.

**The Evaluation of 5 and 7 per cent Carbon Dioxide Mixtures as Respiratory Stimulants.** Heller, E., *et al.*

**The Use of 7 per cent Carbon Dioxide and 93 per cent Oxygen in the Treatment of Carbon Monoxide Poisoning.** Drinker, C. K., and Shaughnessy, T. J., *J. Ind. Hyg.* 11: 293, Nov. 1929.

The subject of these two articles is of very general interest not only to the profession but also to those who in the capacity of first aid workers are called upon to perform artificial resuscitation. The results obtained by Dr. Drinker and his associates are rather striking.

It was noted experimentally that in average healthy young adults (the group tested) there was a marked variation in the individual response to the inhalations of 5 and 7 per cent CO<sub>2</sub> in air. However, the 5 per cent CO<sub>2</sub> mixture did not have as uniform an effect as that of the 7 per cent. This latter mixture evidently also induced a maximal ventilation without causing discomfort to the normal subject. A significant fact was that although the same subject responded differently to identical concentrations of CO<sub>2</sub> on different days yet he preserved a characteristic type of response at all times.

Conclusive proof that the 7 per cent CO<sub>2</sub> and 93 per cent oxygen mixture is more efficacious is based on the following observations:—

With 7 per cent CO<sub>2</sub> the augmentation in breathing is satisfactory, whereas with the 5 per cent mixture there is but slight augmentation in breathing in the same group of individuals tested. The response to CO<sub>2</sub> stimula-

tion is lowered in dangerous CO poisoning, which obviously demands a greater concentration of CO<sub>2</sub> as a means of securing an increase in the breathing which will bring results in the patient. There is no experimental or clinical evidence which points to danger in the use of 7 per cent CO<sub>2</sub> mixture.

Three hundred cases of CO poisoning have been treated with the mixture of 7 per cent CO<sub>2</sub> and 93 per cent oxygen for from 5 to 20 minutes, depending on the severity of the cases, reverting to the usual mixture of 5 per cent CO<sub>2</sub> and 95 per cent oxygen following partial recovery. The results obtained have been according to the above observers uniformly good. Breathing is more active, consciousness returns more rapidly, and the after effects have been slight if at all present.

J. R. FORREST

### SURGERY

**The Cause of Death Following Rapidly the Total Loss of Pancreatic Juice.** Elman, R., and Hartmann, A. F., *Arch. Surg.* 20: 333, Feb. 1930.

In an earlier paper (*J. Exper. Med.* 45: 461, 1927) Elman and Hartmann described the fatal effect of continued loss of the entire external secretion of the pancreas after intubation of the main pancreatic duct. Death occurred in from five to eight days. At that time the cause of death remained unexplained. A few studies of the blood showed dehydration and reduction in the chloride concentration, and, unexpectedly, an increased alkalinity in the serum, an observation difficult to explain on the basis of extensive loss of such an alkaline secretion as the pancreatic juice. Vomiting was nearly always present in dogs deprived of pancreatic juice, and was apt to be more severe in dogs that drank copiously. When small amounts of water were given, or none at all, vomiting seldom occurred. The increased alkalinity of the blood in their early experiments was not deemed a sufficient cause of death. A decisive answer to these questions has been made possible in their recent study of intubated animals, care having been taken to prevent loss of gastric contents by vomiting. They found that when total loss of the pancreatic juice occurred under sterile conditions and in the absence of vomiting the blood showed shortly before death extreme concentration, with marked reduction in base carbonate  $p^H$ , i.e., uncompensated acidosis. Such observations are what one might expect from a consideration of the alkaline composition of pancreatic juice. When there was additional severe vomiting, the acidosis was less marked, absent, or even replaced by alkalosis due to the superimposed loss of acid gastric juice, thus explaining their earlier observations.

From further experimental work in dogs, they consider that death should be prevented or postponed by some mechanism that would diminish the amount of pancreatic juice secreted or lower its concentration of inorganic salts, since it is the loss of these salts and water that are really responsible for the fatal result. A profound dehydration results with marked loss of base carbonate and resulting uncompensated acidosis. The dehydration with resulting changes in circulation is probably the main factor in the rapid death. That the fatal outcome is due to such simple chemical changes is also shown by the recovery and prolongation of life, during drainage of the pancreatic juice, by the administration of a simple physiological solution of sodium, potassium and calcium chloride. Duodenal ulceration was noted in three dogs experimented on, which observation supports the theory that high gastric acidity is a factor in the causation of duodenal ulcer.

G. E. LEARMONTH

**Multiple Malignant Adenomas of the Kidney.** Judd, E. S., and Grier, J. C., *Arch. Surg.* 20: 240, Feb. 1930.

These authors state that large adenomas of the kidney are rarely reported in the literature, but small tumours of this type, varying in size from 2 mm. to 2 cm. are often found at necropsy. Kretschmer recently reviewed 17 cases of the former type and added one of his own. Judd and Grier report another case, the third in which operation was performed. This patient was a man aged 46, whose chief complaints were stomach trouble, weakness, constipation and a palpable tumour of the left hypochondrium. From the age of 20 years, he had had severe indigestion, characterized by gaseous distension, nausea and epigastric heaviness. Because of constipation he had required cathartics daily for years. During the past six months the weakness had become progressively worse.

On examination there was found a brown patchy discolourization of the skin in the regions of the axilla, groin and buttocks. A mass extended anteriorly from the left costal arch almost to the iliac crest. Posteriorly, this extended into the costovertebral angle, and it moved with respiration. It was firm and painless and irregular in outline. The blood Wassermann reaction was negative.

Cystoscopy revealed a normal bladder and normal ureteral meatuses. Catheterized specimens of urine from each ureter revealed only a few blood cells. A pyelogram of the left side showed the outline of a large renal pelvis, with the superior and inferior calices unusually broad and somewhat elongated. The middle calix was irregular in density, suggesting cortical pressure. The diagnosis was indeterminate, but a polycystic kidney or a single cyst of the lower pole



was considered. A pyelogram was then made on the opposite side, which was negative, thus excluding polycystic disease. A differential intravenous phenolsulphonphthalein test showed a normal return from each kidney. A urological diagnosis was made of the tumour of the left kidney, evidently a solitary cyst of the lower pole with unimpaired renal function. The gastro-intestinal symptoms were explained by the constipation, with possibly a secondary relationship to the renal lesion. Pigmentation of the skin suggested hyposuprarenalæmia associated with the renal lesion, but, because the blood pressure was not low, this was considered unlikely.

At operation the left kidney was found to be about five times the normal size, nodular in shape, and moderately adherent to the surrounding tissues. At the lower pole was a large rounded tumour, and multiple, firm, small nodules surrounded the kidney. The ureter was cut at about 5 cm. distal to the pelvis, ligated and dropped back. The vascular pedicle was cut and doubly ligated, and the kidney removed.

On pathological examination, when sectioned through the long axis, there were five distinct grayish-red tumours, the largest 12 cm. in diameter, all surrounding a small amount of normal appearing renal tissue. In the cortex of the kidney, just beneath the capsule, were two small tumours, 3 and 5 mm. in diameter. Microscopically, tumourous tissue was seen in juxtaposition to renal tubules and glomeruli. The tumour did not have a capsule; neoplastic cells adjoined normal renal cells. The arrangement of the tumour cells was roughly adenomatous. The cells and their nuclei were larger than normal renal cells. Large nucleoli and deeply staining granules were present appearing to indicate definitely malignant cells.

G. E. LEARMONTH

**Acute Pancreatitis.** Colp, R., *Ann. Surg.* 91: 392, March 1930.

The etiological factors of this disease are still controversial. Theoretically, infection may take place through the ducts, due to spasm, œdema, or a stone at the ampulla of Vater; by way of the lymphatics; through the blood stream; from adjacent suppuration; or by direct or indirect trauma. The author believes that the ductal, vascular and traumatic methods account for most cases, but doubts the part played by the lymphatic extension of infection. Gall bladder disease bears an important relationship, it being present in 85 per cent of the cases reported.

Acute pancreatitis presents a bizarre clinical picture, and is infrequently diagnosed pre-operatively. Thirty-three of the 51 cases reviewed were in females, and most cases occurred in the fourth decade. Over half gave a history of

cholecystitis. Upper abdominal, intense, occasionally crampy, pain, often not relieved by morphia, was a cardinal symptom. Intense vomiting was present in 34 cases. Many cases were constipated and distended, no relief being obtained by enemata. The average case appeared shocked and acutely ill. The temperature was not unduly elevated; the pulse small not extremely rapid. Clinical jaundice was rare in the series. Cyanosis was noted four times. Abdominal examination elicited upper abdominal tenderness, occasionally to the left of the mid line, infrequently varying degrees of rigidity, occasionally distension, and in about 7 per cent a palpable mass. Free fluid may or may not be present on examination. The average white count was 20,000, and urinalysis proved of no value in making a diagnosis.

Medical and expectant treatment have no place in the treatment of this condition. Inhalation anaesthesia is to be avoided because of the frequency of lung complications in acute pancreatitis. Spinal anaesthesia is probably the best. An upper right rectus muscle-splitting incision affords adequate exposure. Free fluid, which may resemble beef broth, or be serous, bloody, or chocolate-coloured, is usually present. Fat necroses were seen in 32 of 46 cases operated upon. Pathological changes were observed in the gall bladder in practically every case. Occasionally, fluctuation may be made out in the pancreas, indicating the presence of an abscess. Thorough suction of the free fluid should be carried out. Incision of the pancreas is not feasible, although the overlying peritoneum may be incised. In severe cases a cholecystotomy should also be done. Abscesses of the pancreas may be drained retro-peritoneally through the loin, or through the anterior abdominal wall.

The prognosis is grave. Fifty per cent of the 46 cases operated upon died. The average stay in hospital was twenty-five days. In 17 autopsies performed, death was found to be due to actual destruction of the pancreas.

S. D. GORDON

**Indigestion from a Surgeon's Point of View.**

Carson, C. W., *Brit. M. J.* 1: 429, Mar. 8, 1930.

The fact that pain due to upsets in gastro-intestinal function may necessitate operative interference raises these above the plane of minor ailments. Disorders of the stomach may be due to disease of the stomach, or be the results of disease in some other organ, *i.e.*, lesions of the appendix or gall bladder. Diseases of the stomach may be due to pathological change or to physiological variation. Thus one's first problem is to distinguish between actual and referred symptoms. It is very doubtful whether variations in gastric secretions give rise to symptoms.

Disappearance of symptoms is not evidence of cure. Duodenal and gastric ulcers are characterized by remissions during which the ulcer may heal. The author believes the medical treatment is not ideal for peptic ulcers. All forms of sepsis in the upper respiratory tract should be treated before treating the ulcer. If a peptic ulcer is associated with a lesion of the gall bladder or appendix, permanent cure can be hoped for only by operation.

Two types of chronic appendicitis are recognized: (1) following typical attacks, (2) in which there is no history of acute attacks. The latter is characterized by sclerosis and thickening with gradual obliteration from the tip, and gives rise to a train of symptoms referred to the stomach. Chronic appendicitis is most easily confused with viscerotoposis. The latter is not likely to benefit from surgery. X-ray examination rarely aids in the diagnosis of chronic appendicitis. If the appendix is not visualized, no opinion should be given. Local pain and tenderness, unaccompanied by "indigestion" and with no history of an acute attack, is not evidence of chronic appendicitis.

The symptomatology of gall bladder disease, unaccompanied by stone, is not clear-cut. Aching or dragging sensation in the upper right quadrant, flatulent "dyspepsia," anorexia, and an avoidance of fatty foods may be complained of. The disability is practically continuous. A positive Morphy's sign is the only valuable clinical diagnostic point. X-ray examination is valuable. An infected gall bladder should be removed.

Infected mesenteric glands, usually tuberculous, result in disordered intestinal peristalsis. Short, colicky, poorly localized pain, relieved by heat and pressure and brought on by exercise, is characteristic. Vomiting is unusual. Attacks never last more than two to three days. The glands first affected are in the ileo-caecal angle. Appendicectomy, with removal of any caseating glands and careful reperitonization, constitutes the treatment.

In dyspepsias of the middle-aged, the possibility of carcinoma must be thoroughly disproved before any treatment is instituted. Adoption of this principle will result in early diagnosis.

S. D. GORDON

## GYNÆCOLOGY AND OBSTETRICS

**Fetal Bacteræmia: A Contribution to the Mechanism of Intra-uterine Infection and to the Pathogenesis of Placentitis.** Kobak, A. J., *Am. J. Obstet. & Gyn.* 19: 3, March 1930.

A series of 374 consecutive cord blood cultures was studied by aerobic methods. Thirty-four, or 9.09 per cent, of these were found positive. Histological studies were made of placentas in all instances in which the cord blood culture

was positive or the labour unduly prolonged. Morbid processes in all babies were studied histologically and bacteriologically. It was shown that the fetus may have a temporary bacteriæmia without any untoward effects. The bacteriæmia occurs in the fetus frequently as an ascending infection after a prolonged rupture of the bag of waters. The infection route is through the vagina, liquor amnii, and placenta. The maternal blood stream can likewise transmit diseases or foci of infection to the fetus through the placenta. Placental inflammation is the result of a prolonged sojourn of organisms in the liquor amnii and the elaboration of a toxin having chemotactic properties. Leucocytes in the fetal vessels, and possibly in the maternal intervillous spaces, are then attracted toward the amniotic cavity. The organisms in the amniotic fluid break through the damaged amniotic epithelium and through the superficially coursing placental vessels, and thus enter the fetal circulation, causing a bacteriæmia. The prognosis for the fetus becomes unfavourable as the period between rupture of the membranes and the birth of the fetus becomes unduly prolonged.

ROSS MITCHELL

**Maternal Mortality.** McIlroy, L., *Brit. M. J.* 1: 269, Feb. 15, 1930.

The increase in the number of maternity beds in institutions has been a marked feature of the present century. Dr. Kinloch's analysis of the maternal death rate in Aberdeen showed that in the practice of midwives the deaths were 2.8 per 1,000; among practitioners 6.9, and in institutions 14.9. In the obstetrical unit in the Royal Free Hospital, however, the maternal death rate for the last eight years was 2.7 per 1,000. The chief causes of death were obstetric shock, including hæmorrhage, sepsis, and toxæmia. When possible, all cases of sepsis should be treated in the isolation wards of maternity hospitals. Attendants should not suffer from carious teeth or septic tonsils. But the most common source of infection is the patient herself. Coitus should not take place within two months of term.

Vaginal examinations should be quite unnecessary in normal cases which have had antenatal supervision, and where abdominal methods of diagnosis are efficient. Rectal examination is objectionable. During the puerperium infection may take place by contagion from bedpans. In acute cases of sepsis the treatment comprises nursing in the open-air ward, daily colonic lavage, antistreptococcus serum, 20 to 40 c.c. in a daily dose, quinine hydrochloride, 5 to 10 grains daily, into the buttock, and blood transfusion.

The death rate from eclampsia has much decreased because of the use of the Tweedy-Stroganoff treatment, the decline in Cæsarean section, and the abandonment of accouchement

forcé. Obstetric shock accounts for some of those cases in which no clinical or post-mortem cause of death is present. The best sedatives during labour are preparations of morphine, potassium bromide, scopolamine or modified "twilight sleep," or adaline in 10 grain doses by the mouth. Gas and oxygen is the best anaesthetic for the mother and least harmful to the patient.

Cæsarean section has its uses and its risks. The Cæsarean section rate has been reduced since we began to operate only when the patient had been in labour for a few hours. Cæsarean section after prolonged labour, when the patient is exhausted, or when intervention has been carried out, is a very risky operation. An injection of 100 c.c. of glycerin into the cavity of the uterus will stop post-partum hæmorrhage in most cases of ordinary deliveries.

The forceps rate in the Royal Free Hospital unit is 5 per cent. High forceps have no longer a place in obstetrics. Frequent hot sitz-baths before and during labour, and the administration of sedatives tend to lessen the need for forceps. Manual rotation of an occipito-posterior position will save many a case from forceps. Pituitrin should be used only when the head is on the perineum and delivery has been delayed because of weak pains.

Ante-natal supervision is one of the greatest advances ever made in midwifery practice. It is the most difficult branch of obstetrics. The practitioner who does the ante-natal work should supervise the labour and puerperium, and should be made responsible for the whole welfare of the patient with the midwife. The bulk of the midwifery in Great Britain, among the middle classes at least, must be in the hands of the family practitioner. Finance is the greatest problem of all. The public must learn that if they want efficiency this has to be paid for.

ROSS MITCHELL

### PÆDIATRICS

**Remote Prognosis of Pneumonia.** Jameson, H. P., *Arch. Dis. Child.* 4: 365, Dec. 1929.

From a follow-up study in a large group of pneumonia patients, Jameson notes that the presence of a lung scar and periodic infections from the upper respiratory tract are almost constant findings in those patients presenting signs of metapneumonic pulmonary damage. The amount, duration, and recurrence of the interstitial inflammation are the factors to be considered in estimating the remote prognosis of pneumonia. Measles, whooping-cough, and the age at which the child suffers from pneumonia do not appear to be related to the ultimate prognosis.

A. K. GEDDES

**Resuscitation of Asphyxiated New-born Infants.** Cron, R. S., *Am. J. Dis. Child.* 39: 174, Jan. 1930.

The author makes a plea for the discarding of methods dependent on the principle of cutaneous shock or stimulation in the resuscitation of the new-born, and the general adoption of more rational methods based on the physiology of respiration. All detritus must first be cleared from the air passages of the infant. Resuscitation is to be accomplished by supplying 5 per cent carbon dioxide in oxygen with an infant inhalator or by means of an intratracheal catheter and the physician's expired breath.

A. K. GEDDES

**The Size of the reacting Area in Intracutaneous Tuberculin Tests in Relation to Classification of Disease and to other Clinical Factors.** Dickey, L. B., *Am. J. Dis. Child.* 38: 1155, Dec. 1929.

The degree of skin sensitivity to the protein of tuberculin was studied by Dickey in 700 positive reactors among San Francisco children. In each case a single Mantoux test was done, with 0.1 c.c. of a 1:1000 solution of Koch's old tuberculin, and a hyperæmic area of 5 mm. or more in diameter after 48 hours was interpreted as a positive reaction. The average size of the reacting areas was 459 sq. mm., about the surface area of a quarter dollar. The reaction was smallest in children of the first year group, gradually increasing with each added year of age up to six years. Subjects who had a history of contact with open tuberculosis showed a high degree of allergy, as did those of oriental parentage. The strongest reactions were obtained in cases of phlyctenular conjunctivitis; tuberculosis of bones and glands gave more marked reactions than hilar tuberculosis. Children from whom acid-fast bacilli had been recovered, as well as those with an overwhelming tuberculous infection, showed low degrees of reactivity.

The degree of skin sensitivity is not closely related to the degree of tuberculous activity; neither does it appear to be heightened in those with a recent infection. Although recognizing that only the absolute size of the cutaneous reaction, without relation to the total skin surface area, is considered in this study, the author believes it probable that reinfection is an important determining factor in the intensity of the patient's allergic response to intracutaneous tuberculin.

A. K. GEDDES

**Cardiospasm in the New-born Infant: Report of Three Cases.** Birenberg, T. L., *Am. J. Dis. Child.* 38: 1183, Dec. 1929.

Cardiospasm in infancy is a rare condition that has received little attention in the literature. In the three cases reported by Birenberg,



diagnosis was made on the fourth day of life by means of skiagrams and fluoroscopy. Forcible vomiting, during or immediately after feeding, dating from the first feeding, and free from gastric contents, is the chief symptom. Choking from overflow of food into the larynx may occur. The passage of a tube for a number of feedings overcomes the spasm. The literature is reviewed and the etiology and differential diagnosis is discussed. Skiagrams of the author's three cases are reproduced.

A. K. GEDDES

**A Tuberculin Reaction Survey among Hospitalized Children in Iowa.** Taylor, M. H., *Am. J. Dis. Child.* 39: 316, Feb. 1930.

It is of interest to compare this report of the incidence of tuberculosis in an essentially rural child population with figures recently published for urban districts. Smith, in his extensive survey of children from the most crowded sections of New York, found that 43 per cent had become infected before the age of 13 years. Taylor's figures for her Iowa series show 18 per cent incidence at the age of 13 years, with the proportion reaching 31 per cent at the age of 16 years. For the first six months of life the incidence is identical in the two series.

Taylor's paper reports the results of 1,356 routine Mantoux reactions on Iowa children ranging in age from birth to sixteen years.

A. K. GEDDES

## UROLOGY

**Foreign Bodies in the Urinary Bladder.** Winsbury White, H. P., *Brit. J. Urol.* 2: 27, Mar. 1930

Attention is directed to the more unusual types of foreign bodies met with in the urinary bladder. They are discussed under four headings.

1. Foreign bodies introduced *per urethram*.

In males these are seen chiefly as the result of perversions of the sexual act, the object being either to impart rigidity to a flaccid penis or to effect erotic sensations. A case is noted in which three caudal vertebrae of a squirrel were found in the centre of a vesical calculus taken from the bladder of a man of 35 years of age. The patient had practiced masturbation with the tail of the animal. A similar amazing case is cited in which a dog's penis, used for the same purpose, entered the bladder.

In a like manner a variety of objects may find their way into the female bladder, but frequently this is the result of misguided attempts to produce abortion. A radiogram is presented which shows a large enema nozzle in a female bladder. (I have recently observed a case in which a woman experienced a similar

misfortune with a small metal screw driver). The following are mentioned among the objects which have been found from time to time; pencils, knitting needles, nails, hair pins, button hooks, feathers, paint brushes, beans, watch chains, shoe strings, straws, chewing gum, cork, chalk and pieces of surgical instruments, such as filiform guides, catheters and lithotrites.

It is pointed out that in response to a foreign body in the urethra there is often a definite act of deglutition on the part of the controlling musculature with the result that there is a tendency for the body always to move towards the bladder rather than to be extruded.

2. Migration of foreign bodies from hollow abdominal viscera.

There are authentically recorded cases which supply evidence that foreign bodies in the bladder may enter from the intestinal tract. In one reported case an encrusted darning needle was removed from the bladder of a child. The mother had seen the baby swallow it four months previously. In a second, a piece of whale bone pipe formed the nucleus of a vesical calculus. The patient insisted that he had swallowed it many years before. In a third a slate pencil was removed which the patient had swallowed in front of witnesses six months before. Similarly objects introduced into the vagina may find their way into the bladder. A stick, 5½ inches long, was removed from the bladder and vagina of a patient who had introduced it into the vagina two years before.

3. Surgical accessories resulting from operations in the vicinity of the bladder.

The most frequent migrant bodies are unabsorbable sutures from vaginal and pelvic operations. The author has removed two stones formed on such nuclei. Both cases had had Caesarean sections previously. In a third a stone formed on an unabsorbable suture introduced during an operation for right inguinal hernia. A gauze swab left in after hysterectomy, five years before, also found its way into the bladder.

4. Injuries and wounds as a source of vesical calculi.

It must be remembered that persons who have suffered from injuries and wounds in the region of the pelvis are particularly liable to the formation of calculi, since bits of bone, pieces of projectiles, clothes, etc., may be carried into the bladder and constitute a nucleus.

N. E. BERRY

**Cancer of the Prostate. Its Origin and Extension.** Dossot, R., *J. Urol.* 23: 217, Feb. 1930.

The author reviews 154 cases of cancer of the prostate in 63 of which he had autopsy reports. He attempts to elucidate two important points: (1) the relation between adenoma and carcinoma of the prostate; (2) the precocity of

malignant degeneration with a view to determining the feasibility of radical operation.

In regard to the first question he presents two diverging hypotheses: firstly, his own view that cancer practically always develops in a gland which is already the seat of adenomatous change, and that the transformation of adenoma to epithelioma is essentially an exaggeration of the phenomenon of hyperplasia; secondly, the view of Young, Geraghty and others, that cancer and prostatic adenoma are independent conditions and that their association is only due to the fact that both develop approximately in the same period of life. They maintain that cancer develops in the posterior subcapsular region in the zone of normal prostatic tissue compressed between the adenomatous masses and the capsule of the gland, and that when it invades an hypertrophied lobe it does so always secondarily after having invaded the capsule.

The author presents the histological evidence in favour of his own view thus:

" . . . Malignant transformation is essentially characterized by cellular infiltration of the stroma at the periphery of an adenomatous lobule or in the interior of the trabeculae which separate the different lobular elements. One can see aberrant cul-de-sacs, small, poorly defined, sometimes open at one or other extremity and proliferating in columns which branch directly in the stroma. This appearance is characteristic and makes one think immediately of cancer. On examining carefully each section of the preparation, the rupture of the basal membrane and infiltration of the peri-acinous tissue will almost always be seen. In one or many points of the lobule the basal membrane is seen to become less distinct and then to disappear. The epithelial cells form, as it were, a hernia in the stroma and proliferate in the form of a nest, or more often stream out between the connective-tissue fibres."

An appearance which makes the authors hesitate to give a definite diagnosis is the following.

" . . . Around the glandular acini which seem to be fairly typical of hypertrophy are grouped mononuclear cells between the fibres of the stroma and simulating nodules of chronic infection. The presence of a definite limiting membrane at the extremity of the cul-de-sac prevents one being sure of true degeneration, and it is probable that this neoplastic infiltration comes from a glandular rupture which has been produced on another plane than that of the section. . . . and that if we had made serial sections we would have been able to follow the transformation, but we believe our clinical findings sufficient to prove that these portions should be considered frankly malignant."

Cancer of the prostate very frequently spreads toward the seminal vesicles, which may be dilated first from pressure on their ducts and later from actual infiltration. This explains why portions of these structures may be torn away in the enucleation of a carcinomatous prostate and its accidental occurrence suggests malignancy at once. It also spreads frequently to the bladder and less frequently to the urethra. Though a huge carcinomatous mass may press upon and

almost encircle the rectum very rarely does it actually invade the rectal wall.

Prostato-pelvic carcinosis is an interesting condition in which an especially malignant tumour spreads widely by the lymph channels and local infiltration, rapidly filling up the pelvis with a huge tumour which becomes solidly adherent to and invades the pelvic bones. It was observed in 15.8 per cent of the writer's series. Visceral metastases are exceptional, but metastases in bone are frequent. It is estimated by various writers that they occur in 30 per cent of all cases. The sites of election are the lumbar vertebrae and pelvis, less frequently the skull, ribs and long bones. Autopsy findings on cases dying after prostatectomy for clinically benign growths which later proved to be malignant have frequently shown metastases in the pelvic and abdominal lymphatic glands, and in cases of frank malignancy this was a constant finding. This would lead one to give a very bad prognosis, regardless of the line of treatment adopted and such has been the author's experience.

N. E. BERRY

#### NEUROLOGY AND PSYCHIATRY

**Therapeutic Fever, Produced by Diathermy, in the Treatment of Paresis.** King, K. C., and Cocke, E. W., *South. Med. J.* 23: 222, March 1930.

Because of the disadvantages and dangers of the fever therapy advocated by Jauregg, *et al*, the authors undertook to develop a means of inducing sharp temperature curves without injecting disease-causing organisms, and incidentally to determine whether beneficial effects are due to the elevation of temperature *per se* or to biochemical reactions to malarial parasites or foreign protein. By using very large and carefully adjusted electrodes which practically cover the back and front of the trunk, employing a diathermy apparatus capable of withstanding long continued operation under heavy load, and insulating the patient so as to minimize heat loss, they have been able to effect a rapid elevation of the temperature to 104° or higher, and to maintain this temperature for four hours or more. Daily repetition, for from eight to twelve days, permits of practical duplication of the temperature curve of double tertian malarial fever. This can be done without blistering the skin but not without causing much discomfort to the patient. Discomfort can, however, be largely prevented by injecting a mixture of morphia, hyosein and eactin an hour before the treatment is to be commenced. The patient often becomes semi-delirious if the temperature is maintained at 104° for any considerable period. Should unfavourable symptoms develop and not disappear promptly after removal of the insulating blankets, hydrotherapy may be satisfactorily employed.

The authors state that the number of cases treated is too small, and the time elapsed is too short, to justify definite conclusions. The results, however, are thus far quite comparable to those obtained with malaria. The evidence indicates that the benefits derived from fever therapy by malaria and other substances have been due entirely to the accompanying elevation of temperature and not to any associated bio-chemical reaction to the infecting organism. The only serological change noted in the authors' series of cases was a favourable alteration in the colloidal gold curve. Except in one case, which was complicated by an acute nephritis, the urine was unaltered, and no changes were noted in the counts of either white or red blood cells.

W. H. HATTIE

### OPHTHALMOLOGY

#### **Retinoblastoma, (Glioma of the Retina), Report of a Case in a man aged forty-eight. Verhoeff, F. H., *Arch. Ophth.* 2: 643, Dec. 1929.**

Verhoeff gives a detailed account of a retinoblastoma occurring in an adult. The case is also unusual in regard to the site of origin, the mode of extension, and the abundance of rosettes in the growth.

J. W., a white man, of 48 years, discovered that the sight of one eye was almost gone. After examination the clinical diagnosis was intra-ocular neoplasm of the left eye, which was shortly afterwards enucleated. The report of the microscopic examination is given in great detail. That the tumour was a retinoblastoma there was no doubt; the rosettes, the bipolar cells, and the areas of necrosis made a picture never produced by a tumour of any other kind. The unique feature of the case was the advanced age of the patient. This is believed to be the first case recorded in which a retinoblastoma has occurred in an adult. The tumour was observed both clinically and microscopically. The microscopic examination showed in the area of the ora serrata a large intra-ocular tumour, extensively invading the retina, ciliary bodies, and choroid. The tumour consisted almost exclusively of rosettes. The possibilities suggested that it may have arisen from the pars plana ciliaris retinae, and the question is discussed whether it arose from a congenital *anlage* or from an area of senile hyperplasia.

S. HANFORD MCKEE

#### **Eye Manifestations in Fracture of the Skull.**

Blakeslee, G. A., *Arch. Ophth.* 2: 566, Nov. 1929.

The diagnosis of fracture of the skull is not always simple, and the correct diagnosis is so important that the neurologist must utilize all his diagnostic means in advising and supervis-

ing proper treatment. Not the least of the physical signs that especially give one indications of the prognosis are those observed in the eyes. The symptoms and signs from the time the fracture is received until recovery or death, in nearly all the cases, are so predominantly nervous and mental that the neurological study becomes of as much importance as the surgical consideration, if not more. Of 610 cases of fracture of the skull, studied during a period beginning in June 1924 and ending in January, 1927, 475, or about 78 per cent, manifested ocular signs, while 133 or 22 per cent showed none. The eye manifestations have been grouped as follows: (1) ecchymosis and hæmorrhage in the lids and conjunctivæ, (2) paralysis of the extrinsic eye muscles, including ptosis, (3) nystagmus, (4) pupillary phenomena, (5) scotoma, and (6) changes of the fundus and the optic nerve. Hæmorrhage into the eyelid and sub-conjunctival hæmorrhage are frequently present in head trauma, and should always lead one to suspect a possible fracture of the skull, especially in the presence of associated eye signs. There were 35 cases with intrinsic eye muscle signs. Diplopia was a frequent complaint. One showed bilateral ptosis with no pupillary changes; 7 cases revealed external strabismus with a larger pupil on the same side, and 1 case showed a contracted pupil on the same side. Fifteen of the patients in this group died, or nearly 43 per cent, or about 2½ per cent of the total number of the patients with fractured skulls. Nystagmus was observed in 13 cases; it was noted early and usually disappeared in a few weeks. Pupillary changes were probably the most constant sign in the cases of fractured skull. They are grouped into eight subdivisions; widely dilated with fixation; widely dilated with preserved reaction to light; unilateral dilatation and fixed pupil; pupils equal in size and not markedly dilated or contracted; pupils unequal in size, not markedly dilated or contracted; pupils contracted and fixed; pupils contracted, reacting to light; partial Weber's syndrome. Impaired visual fields and lesions in the fundi were rarely observed. Slight engorgement of the retinal vein was the most frequent observation. These scotomas varied from a complete loss of vision in both eyes to irregular segment in either the nasal or the temporal fields of one or both eyes. Of 610 persons with fractured skulls of all degrees 78 per cent showed eye signs. Of these 39.5 per cent died, and of these about 31 per cent had eye manifestations. The prognosis for life in the cases with fixation of the pupils, whether dilated or contracted, was always poor. As a general rule the patient who showed eye signs had much less chance of eventual recovery than one whose eyes played no part in the clinical picture.

S. HANFORD MCKEE



**Is the Bacterium Granulosis of Noguchi the Cause of Trachoma?** Lindner, K., *Graefe's Arch.* 122: 391, 1929.

Lindner was invited to come to America to observe the condition of the eyelids of the monkeys infected by Noguchi with *B. granulosis*. He reported that the macacus rhesus monkeys and the one chimpanzee showed clinically follicular conjunctivitis. He also examined a number of Indian boys and girls at Albuquerque, N.M., and found that 8 of the girls (out of 10) had definite trachoma, whilst 7 of the 8 boys were also positive. In 3 of the 4 girls, and in all 7 of the boys with active trachoma, the author found inclusion bodies. He also examined three cases used by Noguchi in his investigation. Two of these showed active trachoma, and one was doubtful. He states that trachoma among the American Indian does not differ, either clinically or microscopically, from the trachoma of Europe or Egypt. He has no doubt that Noguchi cultivated the *B. granulosis* from mixed cases of trachoma and follicular conjunctivitis, and that the bacterium described by him is not the cause of trachoma, but one of the causes of follicular conjunctivitis.

S. HANFORD MCKEE

**Hæmorrhages in the Fundi in Hypertension.**

Fritz, L., *Arch. Ophth.* 2: 551, Nov. 1929.

Within the past few years it has been possible to differentiate arteriosclerosis and hypertension more accurately than ever before. Previously both conditions were classified as arteriosclerosis. Since arteriosclerosis could be distinguished from hypertension, it became necessary to determine which condition hæmorrhages in the eye belonged to.

In patients with retinal hæmorrhages a high blood pressure has been found. Pure arteriosclerosis has not been found. Cases of pure hypertension point to the causal relation of the hypertension to the origin of the retinal hæmorrhages. Accordingly, the retinal hæmorrhages are not a part of the arteriosclerosis, but a part of the hypertension. In cases of hypertension, abnormalities of the blood vessels of the eye were often observed, differences in calibre, or tortuosities. Sometimes attention was called to the existence of hypertension only by these abnormalities. However, they were found, though much less extensively, in arteriosclerotic and in normal persons, so that it was not possible to say with certainty to which disease they belong. Subconjunctival hæmorrhages, not due to trauma, seem to have the same origin. They were caused by pure hypertension in a small number of cases. According to the author's observations, retinal hæmorrhages show an interesting conformity with cerebral apoplexy. He never found cerebral apoplexy without hypertension, unless hypertension was masked by

cardiac insufficiency. He found the same factors responsible for retinal hæmorrhages. The majority of cerebral hæmorrhages originate in the capillaries, as was shown by Westphal and Baer. Rarely, the hæmorrhages occur because of the bursting of larger blood vessels. The retinal hæmorrhages, which are sometimes small and without any relation to visible blood vessels, seem also in a large number of cases to be of capillary origin.

S. HANFORD MCKEE

**RADIOLOGY**

**Cancer of the Cervix Uteri.** Martin, F. H., *Radiol.* 14: 75, Jan. 1930.

This article, appearing as an editorial, discusses the frequency and curability of cancer of the cervix, deplores the difficulty of early detection, and the pessimism in regard to the condition, which is shared by both public and profession. The author recapitulates the value of radiation and surgery, when used separately or conjointly, and also quotes recent statistics of apparent cures. He states that no cancer patient, no matter how far advanced the disease may be, should be deprived of treatment, because, aside from the possible prolongation of life; such patients may receive much palliative and mental comfort. A strong plea is made for periodic health examinations. In the case of a woman who has borne children this examination should include a complete pelvic audit by a well trained diagnostician.

A. STANLEY KIRKLAND

**ANÆSTHESIA**

**Spinal Anæsthesia.** Boykin, I. M., *Surg. Clin. N. Am.* 9: 1225, Oct. 1929.

Dr. Boykin has used spinocain in 70 cases and on the whole has found the results very pleasing. He injects the spinocain when the patient is sitting up and then quickly places him in the recumbent position, with a five degree Trendelenberg position. Before operations which are likely to take longer than an hour Dr. Boykin injects 4 c.c. of spinocain instead of the usual 2 c.c.

Three of the 70 cases were failures, owing probably to the spinocain having been injected extradurally. In one case there was a "dry tap". This patient later developed a cold abscess at the site of puncture and another which pointed in the groin. One patient, a very fat woman, developed profound shock. The operation had to be postponed. She was operated upon later under general anæsthesia. Not a few of the patients developed a reaction manifested by rapid pulse, profuse sweating and anxiety. They had been placed in a bed which was kept level. It was found that this reac-

tion could be prevented by raising the foot of the bed.

W. B. HOWELL

**An Electrocardiographic Study of the Human Heart during and after Nitrous Oxide Anæsthesia.** Ward, G. E. S., and Wright, S., *The Lancet* 2: 1184, 1929.

Sixteen normal students were subjected to nitrous oxide anæsthesia and electrocardiograms recorded before, during, and after the experiment. The nitrous oxide was given pure, not mixed with air or oxygen. During the stage of induction there were tachycardia, variable changes in the "P" wave (not constant), negligible alteration of the "P-R" interval, but a most striking and constant variation in the "T" wave. This was in almost every case reduced in lead 2, and in some individuals was lost entirely. In the recovery period there is a

rapid return of the rate to normal or below, the "P" and "R" waves readjust themselves to whatever extent they had changed and complete return of the "T" wave takes place in a very few seconds. The same type of experiment, carried out with a mixture of nitrous oxide and oxygen, showed that these fluctuations of the curves are probably due to the anoxæmia produced by the pure anæsthetic and are not due to any toxic property. The mixture, adequate to prevent cyanosis, failed to produce these changes, and the importance of this is pointed out in gas-oxygen anæsthesia. While these changes are transitory in the healthy heart over a very brief period of anæsthesia, it is implied that more serious results may well occur when the diseased heart is subjected to anoxæmia or the duration of the air-want is increased.

J. B. ROSS

**CARCINOGENICITY OF OILS.**—The investigations carried out under the auspices of the Manchester Committee on Cancer on the carcinogenic factors in mineral oils, and on the possibility of manufacturing non-cancer-producing oils of adequate lubricating power are still proceeding, and in addition studies are being made of the cancer-producing properties of some animal and vegetable oils. We are glad to learn from the committee's report for the year ended October 31, 1929, that two of the largest oil-producing companies in the world have recognized the importance of work designed to discover a safe lubricating oil at reasonable cost, and are now assisting the committee's scientific staff in its investigations. During the past twelve months tars have been prepared with the temperature of the furnace tube ranging from 500° to 950° C., in order to ascertain at what temperature carcinogenic compounds are formed in commercial tar and shale retorts. From studies of the relative activity of tars so obtained it appears that carcinogenic compounds begin to be formed between 500° and 600° C., and that the maximum yield is at a temperature between 800° and 900° C. In the course of earlier work, recorded in the *British Medical Journal*, June 15, 1929 (p. 1098), the scientific staff succeeded in preparing a pure synthetic tar containing the carcinogenic principle in such concentration that a 5 per cent solution was more effective in producing cancerous growths than shale oil, the most dangerous of all commercially used oils. By continued investigations on the same lines it has now been able to prepare tars which are at least 100 times as powerful as shale oil. Furthermore, it is trying to determine the chemical constitution of a few ap-

parently pure, or almost pure, compounds that have been isolated from such tars. In the course of studies designed to discover the effect of increasing the frequency of application of carcinogenic agents, it has been found that if the number of applications made each week is increased from two to five, tumours appear more quickly, and their incidence rises considerably, the rise being relatively greater the weaker the agent under investigation. Thus it appears that the carcinogenic potency of shale oil is increased approximately fourfold, and of natural petroleum oils about fifty-fold, by increasing the number of applications made each week from two to five. Such findings suggest that the carcinogenic activity of petroleum oils is much nearer that of shale oil than had previously been imagined. Applying their standard test for the determination of carcinogenicity, the scientific staff found that olive oil, neatsfoot oil, and sperm oil were non-cancer-producing. They have reason to believe, moreover, that natural skin fat is an important factor in the prevention of experimental cancer. Thus, if lanoline—a natural animal fat—is applied to the skin in the interval between synthetic tar applications, the development of tumours is substantially delayed. If it is applied twice as often as shale oil cancer does not appear, but if the applications are alternate the protection afforded by the lanoline is much less marked. Yet another of the committee's investigations concerns the amount of sulphuric acid necessary to produce detoxication of oils, and under its auspices work is being done to ascertain the minimal amount of acid that can be used safely to render an oil harmless.—*Brit. M. J.* 1: 750, April 19, 1930.

## Obituaries

**Dr. Frank Jones Farley**, of Trenton, Ont., died on March 26, 1930.

### AN APPRECIATION

Many will claim the privilege of paying a tribute to the memory of Frank Jones Farley, who died in Trenton, on March 31st, after thirty-five years of conscientious service to his community. The writer of this short sketch knows full well that he cannot antedate their claims, but he has such recollections of the late Dr. Farley that he hastens to put forward this brief detail of a very real man while the memory of his remarkable character and life is still vividly before our eyes.

On a visit to Trenton some years ago, a group of us were entertained by Dr. Farley, and entertained in a way that will not easily be forgotten. Before seeing the many patients who seemed literally to hang upon his words, and before taking part in the association meeting, Dr. Farley insisted that the hills, "to which he ever lifted up his longing eyes" should be visited, and the afternoon was spent in going from peak to peak of the beautiful ridges which stretch to the north of Trenton. Here, as he had frequently told us, his boyhood had been spent, and to these hills it was his custom to return whenever he could take time from his manifold duties.

Listening to his reminiscences, surrounded as we were by the glory of an Ontario autumn afternoon, it required but little imagination to see him as one transfigured, and those of us who stood about know that we were seeing well and clearly into the heart and soul of a great and kindly man. It is rare to find among the men of our profession those having the courage to expose so openly to view their finer sentiments; to a nature such as Dr. Farley the expression of a proper sentiment was an essential part of life.

Born in Murray Township, 68 years ago, Dr. Farley went to school at Brighton, took his degree in medicine at Queen's University in 1894, and went abroad later to study in London and Edinburgh.

Returning to Trenton, he rapidly built up a large practice both in medicine and surgery, but at the same time remained one who ever made the opportunity for the cultivation of many other interests.

Early associated with the Ontario Medical Association, Dr. Farley filled many of the administrative offices, becoming president in the year 1921-1922. Few of the occupants of this exalted position, who were as he was, representative of the great group of general practitioners, have ever been more welcome or more looked up to, and those of us who had the honour to be associated with him in any way appreciated his unusual and kindly interest in all matters pertaining to our own par-

ticular activities in the association—a question, a word, something at least to show that he was aware of the fact that there might be other workers in the vineyard.

Keen practitioner, philosopher, student, lover of nature in all her forms, Frank Farley has passed into the great beyond. The profession has lost a disciple whom the Master would have loved—the mourning hundreds—of his friends and associates have lost their counsellor and friend. The hills now claim the body of him, who to them so often lifted up his kindly boyish eyes, but unto the green pastures beside the still waters has wandered his honest manly soul.

GEORGE YOUNG

**Dr. W. J. Anderson.** The death of Dr. W. J. Anderson occurred on March 27, 1930, at his home at Jasper, Ont., after a year's illness, in the course of which he was forced to give up his medical practice. Dr. Anderson was about 67 years of age and had been a resident of Jasper for thirty-three years. He was a graduate of Queen's University, Kingston (1894). He was twice married. His second wife, who was Miss D. Ferguson of Wolford, survives. Dr. Anderson was a member of the United Church and of the Canadian Order of Foresters.



Dr. Frank Jones Farley

**Dr. Andrew Richard Farrell.** A veteran of the South African war and the world war, Dr. Andrew Richard Farrell died on March 25, 1930, at Toronto. He had been in failing health for two years after a stroke.

Born at Madoc, Ont., 59 years ago, he was educated there and at Albert College, Belleville. Later, he

attended Trinity College, Toronto, graduating in 1900. He started a medical practice in the United States, but when the South African war broke out he returned to Canada and enlisted as a trooper in the 3rd C.M.R. On his return to Canada, he started practice at Arthur, Ont., and later at Tweed.

Again throwing up his practice when the world war broke out, he joined the 7th Artillery Brigade, and received a captain's commission. In England, he contracted rheumatism, was invalided back to Canada in 1916, and assumed medical army duties at Braerbridge, Toronto, and Quebec until the end of the war.

Dr. Farrell was a member of the East End Medical Association, of Queen City Lodge, A.F. and A.M. His widow, formerly Miss Catharine W. Mathieson, of Belleville; three sons, Campbell and Jack, of Toronto, Colin, of Montreal; one daughter, Isabelle, at home; and a brother, Dr. S. J. Farrell, of Holden, Alta., survive.



**Dr. George Clinton**, of Belleville, Ont., died on April 4, 1930. Dr. Clinton was born in 1852 and was a graduate of Queen's University (1878).

**Evan Kennedy, M.D.** While he was in failing health for the past two or three years it was a shock to learn that Dr. Evan Kennedy suffered an apoplectic stroke on March 26, 1930, and had passed away a few days later. He had been a patient at the Homewood Sanitarium, Guelph, Ont., for a few weeks in the hope that rest and treatment would be beneficial. Unfortunately, Dr. Kennedy was one of those who could not stop and rest so long as he could attend to his professional duties.

Evan Kennedy was born at Bridgeville, Pictou County, Nova Scotia, in 1850, being 80 years of age at his death. He attended the country school and was the first teacher in that district after the passing of the Free School Act in Nova Scotia. Later, he became Principal of the school at Wallace. He took the Arts course at Dalhousie University and graduated in Medicine from the Boston University in 1876. He practised for eleven years at Stellarton and in New Glasgow for the next forty-two years. In 1904 he attended the New York Post-Graduate School, and in 1909 took further work in the Middlesex and other leading hospitals in London.

Dr. Kennedy was elected an Honorary Member of the Medical Society of Nova Scotia at its annual meeting in 1927. He had then been in practice more than 51 years. He was always interested in the work of medical societies and was an active member of the Pictou Branch of the Medical Society of Nova Scotia up to a few months ago. He was also a member of the Canadian Medical Association. He was a member of the session of Trinity United Church; also of Albion Lodge, A.F. & A.M.

His wife pre-deceased him about two years and he is survived by a son and a daughter in Calgary, and one daughter living in the United States, Mrs. Rénée Kennedy Morton. The funeral took place from Westminster Church on Saturday afternoon April 5, 1930, and was very largely attended. S. L. WALKER

**James Norbert Lyons, M.D., C.M.** Dr. J. N. Lyons, of Halifax, died of septic pneumonia following a facial infection after less than three days illness, on April 19, 1930, at the Victoria General Hospital, Halifax. A man of fine presence, giving an immediate impression of unusual physical vigor, he was kind and genial and highly esteemed by all who knew him. He brought to his practice a warm humanity as well as professional knowledge and skill. A large part of his work was freely given for those unable to compensate him.

A graduate from Dalhousie in 1916, he at once enlisted and, going to England, joined up with the R.A.M.C., serving efficiently in both Mesopotamia and India. Returning to England he spent a year and a half in orthopaedic surgery in London. Upon his return to Canada he began practice in Halifax, in 1920, and specialized to a considerable extent in orthopaedics. He was a Lecturer at the Dalhousie Medical College and was on the staff of the Dalhousie Health Clinic.

Dr. Lyons was a strong supporter of medical societies, and was a Vice-president of the Halifax branch of the Medical Society of Nova Scotia; an active member of the Provincial Society, and also a member of the Canadian Medical Association. His funeral was held from his late residence, 22 Carleton Street, to St. Mary's Cathedral, thence to Mount Olivet cemetery, the cortege being very long and representative, the attendance of medical men being very large. Dalhousie University of which, in his undergraduate days, he was a very popular student was also largely

represented. Many members, also, of the Royal Nova Scotia Yacht Squadron, of which Dr. Lyons was an active member, were in attendance.

Dr. Lyons was a son of the late James Norbert Lyons, Halifax, receiving his preliminary education at the Halifax Academy. He is survived by his wife and three young children, the third being but three weeks old at the time of his death. His widow was formerly Miss Frances Chisholm, a daughter of Hon. Mr. Justice Chisholm, of Halifax. A sister, Sister Mary Raphael, of the Community of the Sisters of Charity, a teacher in St. Patrick's Girls' High School, also survives.

To his relatives the Medical Society of Nova Scotia will extend sincere sympathy in the unexpected bereavement that has come to them.

S. L. WALKER

**Dr. Charles Russell MacTavish**, Tavistock, Ont., died on April 11, 1930. He was born in 1893 and graduated from the University of Toronto in 1917.

**Dr. Austin Howard McFadden** died on April 7, 1930, in his forty-ninth year after a long illness. He was a native of Millbank, Ont., and had resided there twelve years. Since 1924 he had been a member of the Toronto Township Hydro Commission, his resignation being received only two days ago. He was prominent in Masonic circles and a Past Worshipful Master of Mississauga Lodge. He is survived by his widow and three children. Dr. McFadden graduated from the University of Toronto in 1904.

**Dr. Peter Francis McCue**. In the death on April 4, 1930, of Dr. Peter Francis McCue, Walkerton lost one of its most public spirited citizens. Returning from overseas service in 1920, he commenced to practise his profession in Walkerton, Ont., and in the course of a few years became one of the town's chief physicians. His demise terminated an illness of six months' duration from a heart condition. Born at Melancthon, Ont., 51 years ago, he attended high school in Orangeville, and graduated in medicine from the University of Toronto in 1903. For ten years before enlisting, in 1916, he practised in Formosa, Ont., and in 1908 was married to Mary Payne, who survives with one son and two daughters. The late Dr. McCue was for a lengthy period a medical officer with artillery and infantry units at the front. He was a former Grand Knight of the Knights of Columbus, a member of the Holy Name Society, a leader among ex-service men, and at the time of his death a member of the executive of the local branch of the Canadian Legion. Surviving also are his mother, Mrs. James McCue, of Dundalk, three brothers and three sisters.

Dr. McCue was the local representative of the Department of Pensions and Public Health.

**Dr. Adrian John Menard**, of Windsor, Ont., died on or about February 1, 1930. He graduated from the University of Western Ontario in 1904.

**Dr. Angus Nichol** died in Stratford, Ont., on April 7th. He had practised for twenty years in Stratford and the district, coming there from Seebringville in 1872. One of the oldest physicians in the province, Dr. Nichol was born in Pictou, N.S., in 1844, and had settled in Ontario after graduating from Victoria University School of Medicine, the old Rolph school. A splendid type of the old country practitioner, he was a man of many activities and had been Medical Officer of Health of Downie Township for some years.

## News Items

### BRITISH EMPIRE

#### Poisonous Spider Bite

The death of a woman in Sydney, Australia, as the result of a bite by a Trapdoor spider (*Atrax robusta*) has again brought to notice the danger of bites by these insects. There are three varieties of spiders in New South Wales which are known to cause severe symptoms as a result of their bite. One is the common redback spider (*Lactrodectus hasseltii*) which is found throughout the country districts. The other two are trapdoor spiders, *A. robusta* and *A. formidabilis*. The former are common in the northern suburbs of Sydney, and the latter are found on the north coast of New South Wales. Though of the trapdoor variety these dangerous spiders live in holes with no trapdoor. The males seem to be nocturnal in habit which accounts for their getting in shoes and clothing which have been left lying about. In the present instance, the patient put her hand into an old shoe, and was bitten on the thumb of the left hand at about 8 a.m. She immediately collapsed

and became cold, clammy and pulseless, and retched for an hour. She then became dyspnoeic with some laryngeal spasm. She appeared to be mentally clear and complained of no pain, but stated that she had a feeling of numbness all over. The condition improved for about two hours and then peripheral stasis and cyanosis gradually increased. She was admitted to the Royal North Shore Hospital at noon, still conscious but cyanosed and very restless. At 2 p.m. she had become unconscious and laryngeal spasm, lasting half a minute, came on at half-hourly intervals. The cyanosis increased during the spasms and was accompanied by frothing at the mouth. She was very restless. By 4 p.m. she had Cheyne-Stokes' respiration, and shortly after 5 she died suddenly.

There have been several instances within recent years of death after bites from trapdoor spiders, but it is believed that this is the first time an adult has died from the bite.

### GREAT BRITAIN

#### Virus Studies and Cancer

Just five years ago the Medical Research Council explained that as part of the general program of inquiry into virus diseases which they had planned, Dr. W. E. Gye had taken up the study of the malignant growth in fowls known as the Rous sarcoma. The invisible and filterable agent of this tumour when injected into a fowl multiplies indefinitely and gives rise to a new tumour formation, and presents in that and other ways the character of a virus. In each subsequent year the Council has given a full statement in outline of his observations and the conclusions he had drawn from them. In their report last year they explained in some detail the manner in which he had more recently failed to obtain with certainty and regularity the results that in his earlier work had been consistent enough to lead him to a definite view as to the mode in which a virus conveyed from a pre-existent malignant growth interacted with another factor in the invaded cell to produce a new tumour. In the past year Dr. Gye has made renewed efforts to find and remove the cause of discrepancies in his results, and has now, with the complete sympathy and approval of the Council, decided to leave this phase of his inquiry for the time being and to turn to other aspects of the problem.

#### Birth Control, the Theme of a Play

Dr. Marie Stopes, the famous birth control advocate, has written a play on the subject of birth control. She says that it will be produced in London by Reginald Bach as soon as he can obtain a theatre in the west end.

The play is called "Our Ostriches". Dr. Stopes said it was fundamentally a love story but one act portrayed the birth-rate commission discussing contraception. Her dialogue for this act was taken from a verbatim report of the commission, she said.

Twice before Dr. Stopes has written plays. But "Our Ostriches" was the first one the Lord Chamberlain would license.

#### Jamieson B. Hurry, M.D.

We regret to report the death at Bournemouth, on February 13th, of Dr. Jamieson B. Hurry, at the age of

72. Dr. Hurry was for many years a leading member of the medical profession in Reading, and became widely known for his researches into the history of its ancient abbey.

Jamieson Boyd Hurry received his medical education at Cambridge and St. Bartholomew's Hospital. In 1882 he graduated M.B.Camb., and obtained the diploma M.R.C.S. Three years later he proceeded M.D., having become D.P.H., and in 1890 he graduated B.Ch. He then travelled for a year as ship surgeon, visiting in turn South America, Australia, and India; he was able to gratify his intense love of travel in later years by frequent foreign tours, including North America, Egypt, Morocco, and almost every European country, interesting himself in Continental medical schools, in international social questions, and especially in tropical and economic botany.

In 1885 he joined the late Mr. George May, F.R.C.S., in Reading, and practised for over forty years. At the request of the New Sydenham Society he translated Spiegelberg's text-book of midwifery. During this period he was an active member of the Reading Pathological Society and became deeply impressed with the social and professional value of medical societies. He wrote "A History of the Reading Pathological Society," and afterwards "The Ideals and Organization of a Medical Society," which has been in wide request by the officers of medical societies at home and abroad. He published six volumes on the subject of Reading Abbey, one of the great Benedictine monasteries of this country, and of which for many years he was the recognized cicerone. His devotion to the Abbey was further revealed by various substantial gifts to the town—for example, a noble memorial cross in honour of the founder, King Henry Beaulere, and three memorial tablets which adorn the ancient chapter house. Every Whit Monday he used to conduct a large party of his fellow-townsmen through the ruins of the Abbey, when the world-famous canon "Sumer is icumen in," written down at the Abbey circa 1240, was sung. Perhaps his most valuable gift to Reading was a series of ten uniform historical oil paintings illustrating the history of the Abbey, most of which have been exhibited at the Royal Academy, and which now hang in the Reading Municipal Art Gallery. This series of pictures, each

accompanied by full historical notes, was designed by the donor to stimulate civic pride and local patriotism in Reading.

Another subject which interested him, from his student days at St. Bartholomew's Hospital down to the last days of life, was the influence of the "vicious circle" process, both in individual and in social pathology. He wrote two monographs, "Vicious Circles in Disease" (third edition, 1919) and "Poverty and its Vicious Circles" (second edition, 1921); the former has been translated into French, Spanish, and Italian, and the latter into Japanese, French, and Italian. More than thirty original articles on this subject have been published, several in this *Journal*. This copious literature has done much to emphasize the prevalence of *circuli virtuosos* and *circuli vitiosi* in pathology and sociology, and has led to the widespread recognition of the importance of this circular process.

During later years Dr. Hurry devoted much time to economic botany, and established the well-known educational garden at his home in Reading. Here were assembled from all parts of the world numerous tropical and economic plants, more especially such as yield food, fibre, dyes, or medicine for the service of man, tender plants being housed in a series of hothouses. Close by, in a museum, were exhibited many of the products derived from the plants growing in the garden and conservatories. By this means the plant and its economic product could be studied side by side, and this practical method of studying economic botany attracted large numbers of visitors from far and near. In 1926, owing to impaired health, Dr. Hurry and his family removed to Bournemouth.—*Brit. M. J.* 1: 420, March 1, 1930.

#### The Acts of Rahere

On March 11th a cast of actors, whose names are not announced, gave the first performance of the "Acts of Rahere," a play depicting the foundation of St. Bartholomew's Church and Hospital 800 years ago. Rahere was one of those "fiery particles" which have a lasting hold on the imagination. He was officially the

Court jester of Henry I, and attained much influence while still a young man. After religious conversion he went on pilgrimage to Rome, and there during illness had a vision of St. Bartholomew, who told him to build a church and hospital in the Smooth Field, one of the most depressing and useless spots in the neighbourhood of London, a deserted swamp near the public execution ground. He promptly returned to England, discovered that the site he wanted was the King's and boldly asked for it, in spite of Henry's anger at his desertion. He not only gained his point but his Sovereign's interest and practical help, and he soon drew support in money and personal service from a large section of the population of London. This is the drama that the actors of St. Bartholomew's have reconstructed every evening at 6 o'clock in aid of the project to build a new surgical wing holding 250 beds and an operation block with six theatres. The stage is the sanctuary of the old church itself beside Rahere's own tomb. The performance, in the candle-lit setting of this perfect Norman fabric, was extremely impressive.

The play itself has had a previous existence on the film. It was acted by a group of talented players, several of whom are well-known actors, but out of regard to the spirit and purpose of the work and the sacred place in which it is enacted, they withheld their names.

In the five scenes which carry the story through, from the pilgrimage of Rahere to Rome and back, his vision of St. Bartholomew, and his successful appeal to King Henry I for the land to build on, the author has provided plenty of stirring dialogue and action. Costume, old ballads, and old Church ritual and music helped to fill the piece with colour and interest.

#### Lord Moynihan

At a reception held at the Egyptian Legation in London on March 12th the *Chargé d'Affaires*, Dr. Hamed Mahmud, presented to Lord Moynihan of Leeds, President of the Royal College of Surgeons, the Grand Cordon of the Order of the Nile, bestowed on him by His Majesty King Fuad.

### NOVA SCOTIA

His many friends will be delighted to hear that Dr. W. H. Hattie, Assistant Dean of the Medical School, Dalhousie University, is rapidly regaining his health. Dr. and Mrs. Hattie left for Citronelle, Alabama, several weeks ago for a well earned rest. The medical faculty and student body welcomed the return of the Assistant Dean on April 12th.

Dr. John Cameron, Professor of Anatomy is busy with the preparation of several papers on craniometry which are to be presented at the next meeting of the Royal Society at Montreal. He will leave for England about the middle of May, and will continue his researches during the summer months at the British Museum. Dr. Cameron has been granted the very rare and special privilege of making a scientific study of the famous Rhodesian Skull.

The Medical Students' Society of Dalhousie recently held their Annual Banquet in the Queen Hotel. It was one of the best ever held. The student speakers were forceful and not tedious. Toasts were drunk to the King, the School, the Profession, the Ladies and the Graduating Class. Dr. John Stewart replied for the School in a reminiscent manner, recalling the men associated with the founding and early years of the Medical College. He paid tribute among others to Professor Lawson, a wonderful scientist and teacher; to Dr. Farrell, than whom he had never heard a better lecturer

in surgery; to Dr. A. W. H. Lindsay who practically gave his life to the College and the medical profession in Nova Scotia.

Several of the teaching staff being called upon, a lot of good advice was passed to the graduating class. Three things were evident. In the first place the full-time staff, several of whom are engaged in research work, have the confidence and admiration of the student body. In the second place almost a debate was staged as to comparative values of research and clinical work in a medical college. Again there was expressed the hope that this graduating class would not all leave Nova Scotia.

In looking over the list of doctors on the medical staff of the Glace Bay General Hospital it is quite evident it is an "open hospital," as the staff numbers fifteen! It is further noted that 12 of the 15 are graduates of Dalhousie.

The scientific program of the 77th Annual Meeting of the Medical Society of Nova Scotia has been announced in the *Bulletin*. The meeting will be held July 1st to July 3rd in the beautiful town of Digby, at the New Pines Hotel.

Dr. J. V. Graham, who has been Port Physician at Halifax for a number of years, recently resigned to devote himself entirely to private practice. On April



1st, he was succeeded by Dr. H. A. Chisholm formerly of the Department of Public Health.

The Department of Surgery of Dalhousie University demonstrated by a very fine film "Infections of the Hand" to their senior classes. Members of the Halifax Branch of the Medical Society of Nova Scotia were invited to be present and the lecture room of the Public Health Clinic was well filled with students and doctors. While the title indicates the main purpose of the film its chief value is in demonstrating the course an infection follows. Anterior, posterior and cross section views very clearly showed the anatomical relations of bones, tendons, sheaths and thenar spaces.

Dr. N. H. Gosse gave what was almost a lecture while the film was showing. Intended primarily for the students it would be a fine feature for the Dalhousie

Refresher Course. We trust some means can be devised that the various Branch Societies may also have the benefit of seeing it.

Dr. T. B. Acker of Halifax has had an Honorary Membership in the Canadian Red Cross conferred on him in recognition of his work for Crippled Children in the Maritime Provinces and St. John's, Newfoundland. The manner in which these orthopaedic clinics have been held in Nova Scotia has been acceptable to all practitioners, as far as we are aware. They have mostly been arranged by the Provincial Red Cross. For these, as well as tuberculosis, dental, and other clinics, some organizing agency is necessary, chiefly to develop a community interest of the particular purpose for which the clinic is held. Dr. Acker is to be congratulated upon this action taken by the Canadian Red Cross Society.

S. L. WALKER

## NEW BRUNSWICK

At the annual meeting of the Commissioners of the Jordan Memorial Sanatorium, held in Fredericton on March 13th, the report of the Superintendent, Dr. R. J. Collins, was considered. It was shown that the number of patients now accommodated is 126, compared with 74 before the new plant was opened. It is the intention of the Commissioners to open another pavilion there shortly. There is, at present, a waiting list of 35.

From this report, it is seen that a determined effort is being made by the Government of New Brunswick to aid in the tuberculosis work. Nevertheless, there is still much to be done before bed capacity is provided sufficient for the needs of the province.

Dr. C. W. MacMillan, of the Provincial Department of Health, carried out an examination of all the pupils of the Provincial Normal School at Fredericton during the month of March. The pupils were examined clinically and x-rayed. Dr. MacMillan was assisted by Dr. Arthur R. Melanson and Dr. R. J. Collins. Last year the student body of Mount Allison University and Academy were examined, as well as the students of Saint Joseph's University, Memramcook. This is the third year that the Provincial Normal School has undergone such inspection. Several cases of incipient disease are yearly discovered and an occasional case of advanced tuberculosis. It is not remarkable that many other conditions are discovered by these trained diagnosticians, which have a definite effect on the pupils' ability to study and which, if disregarded, would be a decided detriment in after life.

The forty-second annual report of the Hôtel Dieu Hospital, Campbellton, was published on March 12th and showed a substantial increase in activity during the last year. Two thousand one hundred and five patients were treated in this institution during the last twelve months. The building program for the last year included the building of a spacious nurses' home and the erection of a solarium on the west side of the hospital building. The Hôtel Dieu has a capacity of 106 beds, with a training school of 25 nurses.

The annual meeting of the Council of Physicians and Surgeons of New Brunswick was held at Saint John in the last week of March. The financial condition of the Council and its relations to the New Brunswick Medical Society was reported by the Registrar and found satisfactory. Further discussion of the details of medical registration occupied a large part of the time of the meeting. It was decided that the list of registered physicians of the province should be published during

the first week in January, rather than the first week in May, as had previously been the custom.

The officers for the coming year are: *President*, Dr. G. Clowes VanWart, Fredericton; *Treasurer*, Dr. G. A. B. Addy, Saint John; *Registrar*, Dr. S. H. McDonald, Saint John.

The official list of approved hospitals, according to the American College of Surgeons, issued on January 1, 1930, shows thirteen hospitals in New Brunswick fully approved. These include: The Hôtel Dieu Hospital and the Soldiers' Memorial Hospital, Campbellton; the Hôtel Dieu Hospital at Chatham; Saint John Tuberculosis Hospital at East Saint John; the Victoria Public Hospital, Fredericton; the Moncton Hospital; the Saint John General Public Hospital; the Chipman Memorial Hospital at St. Stephen; the Lancaster Hospital of the Department of Pensions and National Health; the Fisher Memorial Hospital, Woodstock; the Miramichi Hospital, Newcastle; the Saint John Infirmary.

The standardization of hospitals according to the American College of Surgeons' plan has been seriously undertaken since its inception in New Brunswick, and has done much to increase the efficiency of the various institutions. The improvement subsequent to standardization has been particularly noticeable in regard to the keeping of proper case records and indices of both patients and conditions treated.

The annual report of the General Public Hospital of Saint John was published during March and showed that 3,313 patients had been treated at an average cost of \$3.47 per day. The average number of hospital days for each patient was 16.7. The total number of hospital days was 55,472. The average number of patients per day was 146.1. The report shows that the out-patient department is becoming increasingly useful. Four thousand nine hundred and forty-three patients in the out-door department made 10,166 visits. The Training School Board reported a satisfactory year, 30 probationers being admitted, 22 being accepted, and 14 nurses graduated during the year.

This report is the last to be issued from the old institution, as the General Public Hospital building was handed over to the wreckers on April 1st. Arrangements are far advanced for the erection of a beautiful new building to be completed in 1931. Just previous to the demolition of the old building, the Graduate Nurses' Association entertained in the old hospital building at a large Dance and Bridge, the receipts of which will be used to furnish a boys' ward in honour of Nurse Anna Stammers, a graduate of the institution who lost her life during the last war.

The publication called "Prevention", issued by the New Brunswick Department of Health, carried each month a series of valuable articles to the profession throughout the province. The February issue contained a synopsis of the diagnostic points of scarlet fever, written for this issue by Dr. George G. Melvin, Provincial Health Officer, which contained a remarkable amount of information, beautifully presented. Along similar lines, Dr. Wm. Warwick, Health Officer at Saint John, synopsized the methods of control and general treatment of chicken-pox, diphtheria, and encephalitis.

This publication has the vital statistics of the

province as issued by the Department of Health. It is decidedly one that deserves to be read carefully rather than hastily discarded.

The local Board of Health of Saint John has, at present, promulgated a series of regulations requiring that all employees of pasteurizing plants shall undergo medical investigation and laboratory tests to prove that they are not suffering from, nor are carriers of, the usual milk-borne diseases. This is a further step to ensure a safe milk supply in the city and district of Saint John.

A. STANLEY KIRKLAND

## QUEBEC

Eight hundred and ten infantile deaths occurred in the Province of Quebec in January, according to the preliminary statistics from the Provincial Bureau of Health. The general rate is 124.5 per 1,000 births. Of this number rural sections reported a total of 406 deaths, for a rate of 116.7 per 1,000, while the urban districts had 404 deaths, and a rate of 133.6 per 1,000.

Sorel, which recorded seven deaths of children under one year of age, out of a total of 27 births, reported the highest figure in the whole province, 259.3 per thousand, but it was closely followed by St. Hyacinthe, with a rate of 258.1 per 1,000. Third place went to Levis, with a rate of 240 per thousand.

Five sectors reported clean sheets in connection with infantile mortality during the month, namely, Outremont, Westmount, Magog, Rimouski and Victoriaville. Joliette, Valleyfield, Montmagny and St. Jerome reported one death each.

The City of Montreal reported 217 deaths in the infant mortality column, for a rate of 138.3 per thousand, while Lachine, which had 6 deaths, had a rate of 139.5 per 1,000, with Verdun recording a rate of 73.7 1,000 for seven deaths.

The general death rate of the province throughout the month was 13.5 per 1,000, with Quebec, St. Hyacinthe and Sorel the three highest figure towns, for their rates were respectively 27.1; 25.6 and 22.3 per thousand.

A total of 3,143 deaths occurred in the province in January, but this was offset by 6,504 births.

Thetford Mines, with 58.8 per thousand, led the list, followed by Drummondville, which reported 50 per thousand and Cap de la Madeleine, with 49.6 per thousand.

Deaths from specified causes during January were listed as follows: whooping cough, 45; diphtheria, 50; measles, 115; scarlet fever, 23; typhoid 15; influenza, 85; pneumonia, 338; pulmonary tuberculosis, 190; other forms of tuberculosis, 54; infantile paralysis, 3; spinal meningitis, 14; diarrhoea, 123; encephalitis, 0; violence, 76; syphilis, 11; diabetes, 20; heart disease, 379 and cancer, 185.

A newly specified cause of death is given in the January statistics, recording that 20 deaths were caused by maternity, Montreal being listed for 10 and Verdun 1 in the urban areas.

Since the opening of the school term last September the City Health Department inspectors have examined 43,348 children in Montreal, according to a report of the Health Department issued.

Visiting school nurses have examined 418,627 pupils, and 81,868 were shown to have physical defects; 14,177 treatments were given children; 12,049 visits were made to schools and 10,048 to homes; 4,751 children were excluded from school for illness, and 3,785 have since been readmitted.

Dental inspectors gave 2,100 lectures to pupils and

addressed in all 134,451. They examined 1,737 children and found 1,936 dental defects.

The psychiatrists examined 865 pupils, found 125 normal, 740 subnormal, 607 backward children, 21 "unsteady" and 112 nervous and backward.

The nurses attached to the mental hygiene section examined 1,222 pupils.

School inspectors made 3,808 visits to schools, examined 17,679 special cases, found 25,524 with physical defects, which totalled 39,081 in all, and found 24,658 with dental defects.

Since the beginning of the year 4,919 babies were registered at baby clinics, and 5,623 were attended. Nurses made 6,239 visits to homes. There were 4,919 children immunized against diphtheria in the clinics opened by the city.

Since the beginning of January, also, there were 4,044 cases of contagious diseases as compared with 2,404 in January last year. Mumps, whooping-cough and chicken-pox form the three largest increases. Infant mortality shows a decrease so far this year, with 458 deaths for January and February, 1930, as against 461 in 1929.

At a joint meeting of the Mental Hygiene Committee of Montreal and the Montreal Industrial Institute for Epileptics, held on March 27th, it was announced that plans for the organization of a residential training school for mental defectives in Montreal have advanced so far that a provisional board has been appointed to carry out negotiations with the government.

The work of the hygiene committee as described by Dr. W. T. B. Mitchell, director, in the annual report, is, first, clinical, consultation and treatment, mental hygiene service being available to any individual in the community, cases being referred from schools, social agencies, hospitals, physicians and private individuals; secondly, educational, an attempt being made to give the community a better understanding of behaviour problems and of the mental hygiene principles underlying healthy mental development; thirdly, research, educational and clinical contacts, adding to the body of general knowledge of problems of mental health; fourthly, the encouragement in the city of facilities for the furtherance of mental health.

During 1929, a larger volume of clinical work was accomplished than ever before, 510 new cases and 202 old cases receiving treatment. Group tests were given to 600 children between the fourth and seventh grades in one of the city public schools, on the basis of which an experimental re-grouping of pupils is still in process. In September, for the first time, two special classes were provided for seriously retarded and mentally defective children. The organization of the institute has also been responsible for organized work in parent education. Seven discussion groups, made up of parents of children

from infancy to adolescence, have been formed and careful records kept of the discussions.

With Dr. W. T. B. Mitchell as director, officers for the coming year were elected as follows: William F. Angus, *President*; Murray E. Williams, *First Vice-President and Treasurer*; Mrs. Norman Holland, *Second Vice-President*; Dr. F. H. Mackay, *Secretary*, with a large and influential Board of Management.

A new health service for the social agencies is now in operation in Montreal. It is under the consulting directorship of Dr. Grant Fleming, and is a result of his recommendation made at the end of the Health Survey last year, that a health service be started in the city of Montreal. It is under the direction of a special committee of the Child Welfare Association, consisting of: Mrs. W. M. Stewart, chairman; Mrs. O. R. Sharp, secretary; G. H. Greening, treasurer; Dr. Helen Y. Reid, Mrs. T. Caverhill, Mrs. J. J. Creelman, Mrs. W. C. Hodgson, Miss Betty Molson, Mrs. T. B. Macaulay, A. J. Hodgson, S. G. Dobson, Mrs. George Ross. Its staff consists of Dr. Mary Childs, full-time physician; Dr. J. Lothead, part-time clinician; and Dr. Greaves part-time dentist.

The clinic to be used for health examinations will be open to the boys under the care of the Big Brothers' Association, the girls of the Big Sisters' Association, the women and babies of the Women's Directory. And special cases sent by the Society for the Protection of Women and Children. Dental care and special examinations will be given to certain cases sent from the Children's Bureau. A special clinic for the babies under the care of the Women's Directory will be held each week, with Dr. A. K. Geddes in charge.

After April 1st the same type of bureau for health examination and dental service will be offered to all the clients of the Family Welfare in the north district at the St. Hubert Street Bureau. Health clinics will be held covering the period from infancy right through to adult life for the Family Welfare, for the service inaugurated is a periodic health examination service.

The health examination to be used is that recommended by the Canadian Medical Association. It includes not only a complete physical examination but also an inquiry into the health habits of the individual. The office occupied by the health service consists of a waiting room hung with nursery rhyme pictures and supplied with magazines; two dressing rooms, a room for the dentist, a room for the doctor and an office. All is spotless, and, at the same time attractively decorated.

Several cases have arisen in the Province of Quebec, where an injured person making a claim under the Workmen's Compensation Act, 1928, has been operated on by a surgeon of his own choice, without notice to his employer and before obtaining a decision of the Commission. In the majority of such cases, the surgical intervention has eliminated all the elements of proof or control as to the nature and the cause of the accident suffered by the injured person and this practice has, up to the present, given rise to certain abuses against which the Commission feels called upon to protest.

In consequence the Workmen's Compensation Commission rules and orders:—

1. Except in cases of real urgency, no injured workman shall be operated upon, except by a surgeon chosen by the employer, without giving preliminary notice in writing to the Commission and to the employer. The notice may be given either by the surgeon or by the injured person; it should be deposited in the post office under registered cover five full days before the date of the operation, and must indicate the date, hour, place and the nature of the intervention proposed.

2. On receipt of this notice, the doctor designated by the employer or the insurer may:

- (a) make an examination of the injured person at any time; and

- (b) be present at the operation if he so desires.

Failure to comply with the above mentioned ruling will be considered by the Commission as a serious presumption against the validity of all such claims and will expose the injured person and his surgeon respectively to the possibility of rejection of the claim for an indemnity and professional fees according to the circumstances.

W. R. Chenoweth, the Superintendent of the Royal Victoria Hospital, Montreal, in making his report at the thirty-sixth annual meeting of the Board of Governors, held recently, stated that the number of patients admitted during 1929 was 14,307, as compared with 13,603 the previous year.

Some 10,002 were resident in Montreal and 4,305 came from districts outside the city. The total number of days of hospital treatment aggregated 196,144 as compared with 182,589 the previous year, an increase of 13,555 days. The average number of days stay in hospital was 13.7 as against 15.2 a year ago. Patients discharged during the year numbered 14,273 as compared with 13,607 last year. Deaths numbered 476, and the rate, excluding those who died within forty-eight hours of admission and still-births, was 2.3 per cent as compared with 2.4 per cent the previous year.

The receipts for the year from all sources aggregated \$1,065,954.39, and the total expenditure amounted to \$1,080,955.53.

Mr. Chenoweth announced that the following appointment had been made to the consulting staff: Professor A. S. Eve, C.B.E., M.A. (Cantab.), D.Sc., F.R.S.C., F.R.S., of McGill University, as consulting physicist. The superintendent expressed regret at the death of Dr. J. Alex. Hutchison and the retirement of Dr. A. B. Macallum, both consultants to the hospital.

Record was made of the following gifts by legacy: Bequest of \$100,000 under the will of the late Sir Vincent Meredith, Bart., to be paid to the hospital upon the conclusion of Lady Meredith's life interest in the estate.

Bequest of approximately \$40,000 under the will of the late Mr. William Turner, formerly manager of the Bank of Montreal, Chicago.

Through the generosity of some of the governors and friends of the hospital, the sum of \$25,200 was donated to enable the hospital to purchase 325 milligrams of radium. Treatments from this supply of radium were instituted on November 19th.

The following appointments were made to the medical staff:

Consultants: Dr. W. W. Chipman, Prof. J. B. Collip. Attending Staff: Department of Medicine: Dr. Colin G. Sutherland, assistant physician, Dr. Walter De M. Sriver, Associate in Medicine, Dr. G. Raymond Brown, Associate in Medicine, Dr. Jessie Boyd Sriver; Dr. G. R. Brown, Dr. Walter de M. Sriver, Research Associates in the University Clinic; Dr. David Slight, Research Associate in the University Clinic; Dr. H. B. Cushing, Paediatrician-in-Charge, Dr. S. Graham Ross, Paediatrician, Dr. David Slight, Psychiatrist.

Department of Surgery: Dr. W. V. Cone, assistant surgeon, Dr. G. G. Miller, associate in surgery, Dr. Mark Kaufman, associate in surgery, Dr. Dudley E. Ross, associate in surgery, Dr. A. Wilkie, clinical assistant.

Department of Urology: Dr. N. E. Berry, Clinical Assistant.

Department of Obstetrics and Gynaecology: Dr. J. R. Fraser, obstetrician and gynaecologist-in-chief, Dr. J. Stewart Henry, clinical assistant.

Sub-department of Physio-Therapy: Dr. L. P. Ereaux, assistant Physio-Therapist.

Dr. W. F. Hamilton was appointed chairman of the Medical Board.

In moving the adoption of the superintendent's



report, Sir Herbert Holt referred to the regret with which the Board of Governors accepted the resignation of Dr. Chipman as obstetrician and gynaecologist-in-chief of the hospital. He read to the gathering the resolution of regret which the Board had unanimously passed, as follows:

"Resolved: That the Board of Governors accepts with much regret the resignation of Dr. W. W. Chipman as obstetrician and gynaecologist-in-chief to the Royal Victoria Hospital and desires to express its gratitude for his long and devoted service to the hospital over a period of 29 years.

"That this Board also desires to place on record the prominent position Dr. Chipman occupied in the medical profession and his outstanding ability which contributed in a large measure to maintain the high standard of efficiency and success of this institution which he served so well, and with such distinction.

"Dr. Chipman's professional attainments have been an inspiration to everyone associated with the hospital and the board desires to record its testimony of appreciation and to express the hope that in the years to come this hospital may still benefit from his continued interest and support.

During the month of February, Dr. M. F. D'Herelle, the discoverer of the bacteriophage, formerly professor

at the Pasteur Institute of Paris, and now professor of protozoology at Yale University, was in Montreal, and delivered a number of lectures on the bacteriophage at McGill University and the University of Montreal.

Of considerable importance, as affecting the welfare of the two large English-speaking hospitals in Montreal, was the judgment rendered last October by Mr. Justice White of the Superior Court, which maintained that the donation of \$200,000 made by the Bank of Montreal to the Hospital Campaign was within the scope of the Bank Act.

Dr. H. S. Birkett has been elected an Honorary Member of the Scottish Otological and Laryngological Society, and also a Member of the International Collegium of Otology and Rhino-Laryngology.

Dr. D. W. MacKenzie has been elected Vice-President of the Association of Genito-Urinary Surgeons.

Dr. W. G. Turner has been appointed Chief Surgeon to the Shriners' Hospital for Crippled Children, Montreal.

## SASKATCHEWAN

At the annual meeting of the Saskatchewan Medical Association a cancer committee was appointed to investigate the cancer situation in the province. The death rate for cancer is at present higher than that for tuberculosis, that is, 55.2 for cancer and 44.4 for tuberculosis per 100,000 of population for the year 1928. The mortality is increasing each year; the deaths in the province for the past three years were 387, 445, and 468.

In co-operation with the committee appointed by the medical association the provincial department of health is undertaking a survey to ascertain the number of cases of cancer that have actually come under the care of the medical profession during the year 1929. The department sent a questionnaire to all physicians in the province regarding cancer cases treated.

At the recent session of the Legislature a bill introduced by Hon. Dr. F. D. Munroe, Minister of Public Health, was passed providing for the establishment of a permanent cancer commission. The bill in its essential principles is as follows: (1) The establishment of an organization to be known as the Saskatchewan Cancer Commission. (2) A continuous campaign of public education in order to aid in the control and successful treatment of cancer. (3) Establishment of consultative diagnostic clinics, as may be required for the diagnosis of the disease. (4) The acquisition of an amount of radium suitable to the needs of the province, at an approximate cost of \$115,000. (5) The establishment of an emanation plant at the Physics Department of the University of Saskatchewan, from which physicians and hospitals of western Canada will be able to secure radon-seeds for the treatment of cancer. (6) Thorough investigation of all phases of the cancer problem by the Commission.

In his speech on the bill Dr. Munroe estimated that there were at least 1,500 cases existing in the province at the present time.

The capital cost involved in the purchase of one and a half grams of radium would be approximately \$105,000 to \$115,000. At the present time it is not intended to make the diagnosis and treatment of cancer a free service but the charges will be quite reasonable.

The high incidence of tuberculosis among the Indians has long been a concern to the health officials in charge of them. Dr. R. G. Ferguson, who is in charge of tuberculosis work in Saskatchewan, has co-operated with the department of Indian Affairs to plan a study of the health of the Indians. The location of this work is the Qu'Appelle and File Hills Reserve and the Qu'Appelle and File Hills Indian Schools. The purpose is to demonstrate what can be accomplished in the reduction of the tuberculosis death rate among the Indians on the Reserves and in the Indian Schools by the application of public health measures calculated to improve the general health of the Indians.

The position of medical superintendent of this demonstration was advertised as vacant by the Civil Service Commission of Canada. Some of the qualifications required of the applicant were experience in the practice of medicine and several years of professional practice among Indians. It was stated that preference would be given to those who had served overseas. The appointment was given to Dr. A. B. Simes, a graduate of Queen's University, who served overseas with the Tenth Stationary Hospital, and has been doing general practice in Abernethy since 1919. He also has held an appointment for work among the Indians at File Hills Reserve.

The National Research Council is giving a grant of \$6,000.00 a year toward this work which is to be directed jointly by the National Research Council and by the Indian Department through the medium of the local director of Indian Research, R. G. Ferguson, and the Director of Medical Service of the Indian Department, Ottawa.

Sterilization of the mentally unfit was discussed at the annual convention of the United Farmers of Saskatchewan. A resolution was passed asking the provincial government to introduce legislation providing for the sterilization of the mentally deficient. Bringing mentally deficient children into the world, the resolution pointed out, was a detriment to the state. Children from mentally deficient parents were also defective. The convention asked that the government appoint a committee with representatives from the organized

farmers and labour, and that this committee, after thorough investigation, should judge as to who should be considered mentally defective within the meaning of the resolution.

The following resolution on birth control was passed at this convention: "Whereas we believe that intelligent use of contraceptives is one of the most important steps toward solving the economic problems of the farmers and other working classes, and whereas we believe that birth control is the only humanitarian way of preventing a mother from being over-burdened and broken in health with too numerous progeny, and whereas we know that in countries where birth control is legalized are found the healthiest, happiest and most moral people on earth, and whereas we believe that birth control is destined to play the most effective part in erasing two of the biggest blots on modern civilization in all countries, namely, maternal and infant mortality, therefore, be it resolved that we in convention assembled do forthwith advise our government to raise the ban on safe, sane, and hygienic contraceptives, and be it resolved that we advise that there be immediately made provision for training all practising physicians in the application of such contraceptives, and be it further resolved that we advise that clinics be added to all hospitals far and wide for the purpose of dissemination of such contraceptive methods as are found most suitable for each case."

The president of the Women's Section in her speech stated that a questionnaire placed before the delegates at the farm women's university week last June showed a general agreement of opinion to the effect that medical services in rural areas were inefficient and the cost was too high. She stated that she hoped that their demands and the present agitation might result in the establishment of more union hospitals, in the engagement of more municipal doctors, and in the placing of the services of a free consultative clinic in reach of all the people of Saskatchewan.

At the annual convention of Rural Municipalities of Saskatchewan a resolution dealing with mental defectives was passed. The resolution provides that defectives be debarred from marriage, and placed under social restraint, and recommends the investigation of sterilization methods adopted elsewhere. During the discussion of this resolution one member said that he knew of 100 people, the progeny of one mentally defective couple, not one of whom was quite normal.

At the March meeting of the staff of the Grey Nuns' Hospital, Regina, Dr. F. C. Corbett reported a case of splenomyelogenous leukaemia in an Indian. The

opinion of Dr. Corbett and of the members present was that in these cases splenectomy is an unjustifiable procedure.

The annual struggle of the chiropractors and osteopaths for a letting down of the educational bars took place before the Law Amendments Committee of the Legislature. The drugless practitioners wanted to name or at least submit to the University of Saskatchewan the names of those who shall conduct the examinations which must be passed before registration and license to practice in the province.

Under the act as it now stands the university names the personnel of the examining board. To date eight chiropractors have appeared before such a board and not one has been able to pass. One osteopath tried the examinations set by the university and finally passed supplementals.

E. L. Raffenberg, osteopath, practising in Regina and licensed under the old act of 1913, relating to osteopaths only, opposed the amending bill and made it extremely plain that he did not want to be coupled with or have anything whatever to do with chiropractors, whom he termed "imitators" and persons who had only "a few ideas filched from the osteopathic system."

Legal counsel for the two groups of drugless healers argued in favour of the bill. C. J. Gaddis, osteopath, of Chicago, also spoke in favour of the bill. A great deal of time was taken up in an effort to explain the difference between a chiropractor and an osteopath. C. J. Gaddis refused to make the attempt, stating that he really knew nothing about the chiropractic system of healing. Others tried to make the explanation, but each one disagreed with any person who had previously spoken.

Those who were keen in cross-examining the various speakers were Dr. O. E. Rothwell of Regina, Dr. J. M. Ulrich, M.L.A., former Minister of Public Health, and Hon. F. D. Munroe, the present minister of public health.

There are approximately 60 unlicensed chiropractors practising in Saskatchewan and about 14 who are licensed. The bill to amend the act failed to pass so the university continues to name its own examiners.

LILLIAN A. CHASE

Dr. T. A. Patrick, of Yorkton, Saskatchewan, who is the second oldest practitioner in the province in years of service and who began his second forty years in practice in that district on April 29, 1929, was operated on at the Colonial Hospital, Mayo Clinic, Rochester, Minn., on April 2nd. Dr. Patrick plans to spend a month in eastern Canada.

## ALBERTA

The first of this year's lectures under the Canadian Medical Association's extra-mural post-graduate scheme were given in Alberta between March 31st and April 12th, when eleven cities and towns in the northern and southern parts of the province were visited.

We were fortunate in having Dr. James McKenty, F.A.C.S., Associate Professor of Pathology and Dr. Daniel Nicholson, M.R.C.P., both from Manitoba University, Winnipeg, whose aims were to give something of practical utility to the physician in general practice as well as to the surgeon. When in Calgary, Professor McKenty and Professor Nicholson each gave two lectures.

Professor McKenty took as his first subject of discussion, "The diagnosis of acute abdominal lesions." This included acute appendicitis, primary obstruction of the small bowel, perforative lesions of the stomach and duodenum, gall-bladder disease, acute pancreatitis,

ectopic gestation, and torsion of the ovarian pedicle. The methods of treatment of each lesion were fully elaborated. His second lecture was on "The after treatment of surgical cases," in which he dealt with shock, acidosis, acute dilatation of the stomach, intestinal obstruction, respiratory complications, and phlebitis. The treatment of a common type of operative case was also fully covered.

Professor Nicholson's first lecture was on "Cell sedimentation" a procedure which is of value especially in gynaecological practice, in diagnosing a pelvic abscess, in determining whether a fibroid growth is infected or not, or in the diagnosis of a chronic parametritis from a fibroid. It is of value in acute infections such as pneumonia and in chronic diseases such as tuberculosis. The sedimentation rate is increased with the severity of the infection. The chief value of this test is that it can be carried out in the physician's office. Professor

Nicholson's second lecture was on "Certain points in gastro-intestinal bleeding." In this he dwelt especially on gastric carcinoma, gastric ulcer, duodenal ulcer and carcinoma of the colon. The various tests for determining occult blood were thoroughly discussed and the value of each weighed in the balances.

All the lectures were highly instructive and were greatly appreciated.

Members of the Calgary Medical Society were given an address of much interest on April 1st by the Rev. George A. Dickson, who took as his subject "Religion and medicine, yesterday and to-day" in which he traced the close relationship between priestcraft and the practice of medicine in ancient and mediæval times. In England for many centuries the church had an intimate association with medical practice to the time of Henry the Eighth, when a charter was granted to the Royal College of Physicians. The practice of faith-healing was taken up in his discourse, in which the value of this method was discussed from the speaker's standpoint. He voiced

a plea for a better understanding and a closer bond of working together between physicians and the clergy.

Plans are underway for the erection of a fourteen storey medical and dental arts building in Calgary in a central location. It is estimated that this building will cost in the neighbourhood of one million dollars.

Dr. R. E. Buswell, who practised in High River for many years, is now in London, England, where he expects to remain for one year doing post-graduate work.

Dr. Paul Baxendale, of Hanna, is doing post-graduate work in London. Dr. Begg, of Sedgwick, is looking after his practice during his absence.

Dr. G. A. Ings, of Fort McMurray, which is located in the far northern part of this province, recently brought a patient to an Edmonton Hospital by aeroplane a distance of 275 miles. Within three hours after leaving his patient in the hospital he was back home again.

G. E. LEARMONTH

## BRITISH COLUMBIA

The Royal Commission on State Health Insurance and Maternity Benefits appointed by the Legislature of British Columbia in February, 1929, presented a progress report at the recent session of the House. The report gives an account of the information which has been assembled bearing on such legislation throughout the world and points out that before definite recommendations can be brought forward considerable further study is required.

While it is agreed that such a measure should be made nation-wide, and precedent in other countries would make it a Federal affair, the Department of Justice has pointed out that under the British North America Act insurance is definitely a matter for Provincial Legislation, and that while the Federal authorities might assist financially, as they have done with the Old Age Pensions, initiation of any such measures must be left to the provinces.

Among the conclusions arrived at are the following:

That such a scheme should include a comprehensive program of preventive medicine.

That among workers within fixed limits as to income insurance should be compulsory.

That under such conditions the costs of the scheme might be expected to progressively diminish, through the avoidance of unnecessary illness, increased efficiency of the workers, and lengthened period of industrial activity. In this connection reference is made to the present enormous cost of sickness in the Dominion, as pointed out by Dr. J. W. S. McCullough, Chief Officer of Health for the Province of Ontario (1927). It is considered that an organized medical service could give efficient diagnostic and therapeutic facilities at a cost considerably less than at present obtains. By preventive

methods and early diagnosis, it is expected that the necessity for much hospital accommodation now required might be reduced.

Dealing with the present situation in British Columbia, a study has been made of existing schemes, including fraternal societies and various industrial welfare and benefit institutions. With regard to fraternal societies, their benefits are restricted to small selected groups, and even under these conditions it is considered doubtful if they could successfully face the exceptional stresses which might arise in an epidemic. A comparison of the various industrial schemes shows most remarkable differences, varying from associations entirely supported by contributions from the employees, to others almost entirely supported by the employers. Benefits show similar wide differences in scope, including in some cases the provision of life insurance at the employer's expense. While objections to any form of state insurance were encountered, a majority of employers appeared to favour the proposal.

It may be noted that while the medical profession of the province might be considered as vitally interested in the question, no reference is made to their point of view. One employer is reported to have recommended that the medical profession and all hospitals should be brought under state control.

The Commission is of the opinion that there is justification, and a general demand, for the introduction of a public health insurance plan. The report is exceedingly interesting and furnishes considerable food for thought to all who are interested in the future of the medical profession. The Commission is continuing its investigations.

C. H. BASTIN

## UNITED STATES

The New York Academy of Medicine  
Third Graduate Fortnight, October 20 to 31, 1930  
"The Medical and Surgical Aspects of Acute  
Bacterial Infections"

The third annual Graduate Fortnight of the New York Academy of Medicine will be held from October 20 to 31, 1930. The general subject which has been chosen for this year is "Medical and Surgical Aspects of Acute Bacterial Infections."

The program as arranged is in two parts,—co-

ordinated afternoon clinics to be held in ten important hospitals of the city, and evening meetings to be held at the Academy. An added feature of this year's Fortnight will be an exhibit of anatomical, bacteriological and pathological specimens, and research material bearing upon the various aspects of the subject.

Each of the hospitals co-operating in the Fortnight will present two afternoon clinical programs dealing with different phases of the general subject.

The program for the evening meetings to be held at the Academy includes discussions of:



Focal infections as a cause of disease; osteomyelitis and acute joint infections; acute infections of the genito-urinary tract; infections arising from tonsils and sinuses; infections of the middle ear; acute infections of the face and oral cavity; operative risks from infection; appendicitis; bacterisemia; suppuration of lung and pleura; acute infections of the gall-bladder and biliary tract; infections of the skin and subcutaneous tissue; acute infections of the upper respiratory tract including influenza; the pneumonias and other pneumococcus infections; bacteriophage as a treatment in medical and surgical acute bacterial infections; puerperal sepsis; immunity—general and local; serum therapy; vaccine and non-specific protein therapy; rheumatic fever; acute and sub-acute bacterial endocarditis; meningococcus infections, including meningitis.

The list of speakers who have been invited to take part in the Fortnight includes prominent clinicians from many parts of the country who are recognized authorities in their special lines of work.

The profession generally is invited to attend.

No fees will be charged for attendance at any of the clinics or meetings on the program.

A complete program and registration blank for special clinics and demonstrations will be mailed on request.

#### Fifteenth Annual Clinical Session of the American College of Physicians

The American College of Physicians will hold its Fifteenth Annual Clinical Session at Baltimore, Maryland, from March 23, 27, inclusive, 1931. The Lord Baltimore Hotel will be headquarters.

Dr. Sydney E. Miller, Baltimore, as President, will have charge of the selection of the general scientific program. Dr. Maurice C. Pincoffs, of Baltimore, has been appointed by the Board of Regents as the General Chairman of the Session, and will make all local arrangements, including the making up of the program of clinics. Business details will be handled by the Executive Secretary, Mr. E. R. Loveland, from the College headquarters, 133-135 S. 36th Street, Philadelphia, Pa.

The attention of secretaries of various societies is called to the above dates, in the hope that their societies will select non-conflicting dates for their 1931 meetings.

#### The American Association for the Study of Goitre

Beginning this year the American Association for the Study of Goitre will award a cash prize of \$300 annually for the best original thesis dealing with some phase of the goitre problem. Theses should be submitted by June 1st, to Dr. Walter M. Simpson, Chairman of the Essay Committee, Miami Valley Hospital, Dayton, Ohio. The award will be given immediately following the coming meeting of the Association, which is to be held in Seattle, Washington, July 10 to 12, 1930.

#### Johns Hopkins Hospital

Johns Hopkins Hospital is building a new clinic of 350 beds. The capacity of the hospital will be increased by only 165 beds, however, as the present wards F, G, and H will be replaced by the new building. The entire bed capacity will be used for the benefit of the poor of Baltimore, but, in addition, research laboratories and facilities for hydro- and physical-therapy will be provided. The cost will be about \$1,300,000, an amount which has been supplied by the General Education Board.

#### The Women's Medical College of Pennsylvania

Work on the new college and hospital building for this institution has been begun on a site at the junction of Abbotsford and Henry Avenues, Philadelphia, and it is expected that the building will be completed by the autumn. The hospital will contain about 150 beds. The cost of the ground and building is estimated at \$1,000,000.

#### Investigation of the Teeth at Yale

What is said to be the first comprehensive investigation of the rôle played by the teeth in health and disease is to be made by the Medical School of Yale University. The ultimate purpose is to create a group of medical specialists in teeth, just as there are specialists in diseases of other organs of the body. In addition to studying the natural history of the teeth, the causes of dental diseases, and the relation of these diseases to the general state of the body, attention will be devoted to bringing operative procedures in connection with the teeth more into line with modern surgical knowledge.

### GENERAL

#### The Eighth International Congress of Dermatology at Copenhagen

The eighth International Congress of Dermatology and Syphilology is to be held in the Christiansborg Palace at Copenhagen from Monday, August 4th to Saturday, August 9th, under the patronage of the King of Denmark and the presidency of Prof. C. Rasch. After a meeting of delegates on Monday afternoon and a reception in the evening, the Congress will be opened by the King at 9 a.m. on Tuesday, to be followed by a discussion on the "Etiology and pathogenesis of eczema," introduced by Darier (Paris) and Jadassohn (Breslau). On Wednesday morning the subject of "Syphilis: immunity, re-infection, superinfection," will be introduced by Truffi (Padua) and Wade Brown (New York). On Thursday morning dermatological cases will be demonstrated at the Rigshospitalet, and on Friday morning a discussion on "Tuberculosis of the skin and its treatment" will be introduced by Adamson (London) and Reyn (Copenhagen). Every afternoon except Thursday individual papers will be read and discussed. Intending contributors are asked to communicate before April 1st with the Secretary-General of the Congress, Dr. Svend Lomholt, Raadhushplassen 45, Copenhagen.

#### Post-Graduate Work at Bordeaux

Professor Georges Portmann will give a five-week, intensive post-graduate course in ear, nose, and throat surgery, at the University of Bordeaux, France, commencing July 21, 1930. This course is open to American and Canadian physicians.

For information apply to Dr. L. Felderman, Mitten Building, N. W. Cor. Broad and Locust Streets, Philadelphia, Pa., U.S.A.

#### Third International Congress of Radiology

It has been decided to hold the Third International Congress of Radiology in Paris at the end of July, 1931. The President will be Dr. Antoine Bécère, the Vice-Presidents Dr. J. Belot and Prof. Cl. Regaud (Paris), Prof. J. Cluzet (Lyon), and Prof. Béchou (Bordeaux), and the Secretary-General Dr. Ledoux-Lebard, to whom inquiries should be addressed at 122, Rue La Boétie, Paris (8e).

#### Prof. Karl Landsteiner

The Paul Ehrlich gold medal for 1930 has been awarded to Professor Karl Landsteiner of Vienna by



SOLUTION  
VITAMIN-D

# OSTOGEN

## THE BRITISH STANDARD

The smallness of the dose of OSTOGEN when compared with other preparations is due to its higher concentration of activated ergosterol. OSTOGEN is biologically assayed and standardized to the standard of the *Pharmaceutical Society of Great Britain* and contains 2000 Vitamin D units in each drop. Expressed in terms of the American standard the potency of OSTOGEN is 400 times that of high grade cod liver oil.

## OSTOGEN DURING SUMMER MONTHS

The short period during which adequate exposure to solar ultra-violet light is feasible in our latitudes demands continuous Vitamin D administration.

OSTOGEN presents, in an agreeable vehicle, facility of administration and unvarying potency, giving assured security against symptoms of Vitamin D deficiency.

**For the prevention of rickets and tetany**

One to two drops daily.

**For the prevention of faulty jaw formation and dental defects**

One to two drops daily.

**For Vitamin D requirements during pregnancy and lactation**

Two to four drops daily.



**Charles E. Frosst & Co.**

MANUFACTURING PHARMACISTS SINCE 1899  
MONTREAL - CANADA

the Rockefeller Institute of New York for his discovery of human blood groups.

#### A Memorial to Lamarck

Jean Baptiste Lamarck, soldier, biologist, and philosopher, was born in Picardy in 1744, and died in 1829. His remains lie buried in an anonymous grave in Montparnasse cemetery, Paris, but until 1914 his native country had a memorial of him in the house where he was born, the home of his ancestors at Bazentin, a small village of the Somme, not far from Albert. During the war years Bazentin lay within the war zone, and now what was Lamarck's house is but a heap of ruins. The Société Linnéenne du Nord de la France has resolved to raise a fund to be used for the purpose of erecting on the site of the old house a memorial worthy of Lamarck's greatness. This memorial will stand in the middle of a garden in which the plants grown will be the botanical species specially studied by Lamarck or named after him by other botanists.

#### A Neurologist's Romance

The name of Dr. E. Feindel of Paris, whose death took place on January 19th, is known to neurologists all over the world, but we doubt if many outside his own country are familiar with the story of his life which is told in a sympathetic obituary notice in the January issue of the *Revue Neurologique*. About thirty-five years ago he was picked up comatose in a Paris street and taken to the Hôpital St. Antoine. On recovering consciousness he was found to have right hemiplegia. The late Professor Brissaud, under whose care he was placed, found that though no improvement was likely to take

place in the hemiplegia, the intelligence and judgment were intact. The patient turned out to be a well-educated man who had obtained a science degree at Lyons University, and was earning a moderate living as a tutor in Paris. Brissaud encouraged him to write with his left hand, gave him some work in his laboratory, entrusted him with some bibliographical research, and finally persuaded him to qualify as a doctor. Feindel's inaugural thesis on neuro-fibromatosis was a richly documented work which can still be consulted with profit by those interested in the fascinating subject of von Recklinghausen's disease. Being unable to practise he devoted himself to literary work, and in addition to acquiring the knowledge of several foreign languages, taught himself shorthand and the use of a typewriter. During the whole of his professional life he was closely associated with the *Revue Neurologique*, to which he contributed numerous original articles and summaries of current literature in many languages, as well as being responsible for the excellent table of contents and bibliographic files. He was the author of a series of important articles on gigantism, infantilism, paramyoclonus, and "spondylose rhizomélisque." The work on ties and their treatment which he wrote in collaboration with Henry Meige was translated into English by Dr. S. A. Kinnier Wilson in 1907.—*Brit. M. J.* 1: 608, March 29, 1930.

#### Pirquet and Unna

The city of Vienna has decided to erect a monument to the late Professor Clemens Pirquet; and a street in Hamburg has recently been named after the late dermatologist, Professor Paul Unna.

## Book Reviews

**J. George Adami.** A Memoir by Marie Adami and others. Introduction by Sir Humphry Rolleston, Bart., G.C.V.O., K.C.B., M.D. 179 pages. Price 10/6. Publishers: Constable & Co., Ltd., London; Macmillan Co. of Canada, Toronto, 1930.

It is not too much to say that the publication of this Life of Adami has been eagerly awaited by many on this side of the Atlantic. For more than twenty years the late Professor Adami was a leading spirit here in various fields of useful activity and he left a deep and lasting impress on the study and teaching of Medicine in North America. Particularly is his memory green at McGill University, where he held the Strathcona Chair of Pathology with great acceptance.

In this little book of less than two hundred pages Mrs. Adami gives us, with a loving and understanding touch, and in a charming way, the main facts in the life and work of her distinguished husband. She has been assisted in her task by some who were his friends and colleagues in England, Canada, and the United States.

Sir Humphry Rolleston, in a short preface, remarks with truth, "This memoir of a man of many activities and broad sympathies will not only appeal to the diminishing band of his contemporaries and to his numerous pupils on both sides of the Atlantic, but will provide a permanent record of an exceptionally gifted leader in pathological and general education." Mrs. Adami has written the larger part of the book, dealing with her husband's work in the four cities with which he was identified—Cambridge, Montreal, London, and Liverpool. In her pages the man himself seems to be once more among us. We are shown how his early training in biology came inevitably to colour his exposition of pathological principles; we become aware of

the catholicity of his interests; and we are made to wonder at his boundless energy. Old letters, family records, and the personal recollections of friends have been freely called upon to embellish this intimate history. To it is added a complete list of Adami's publications with full references.

The book concludes with other chapters: Adami as Pathologist, by A. G. Nicholls; J. G. Adami, His Life and Influence at McGill, by C. F. Martin; Prof. J. G. Adami and the Medical Museum of McGill University, by Maude E. Abbott; J. G. Adami, Recollections of his Days in Montreal, by Oskar Klotz; J. G. Adami, The Significance of his work in Pathology, by A. S. Warthin; and Memories of the Consultative Committee, 1920-1926, by Ernest Barker.

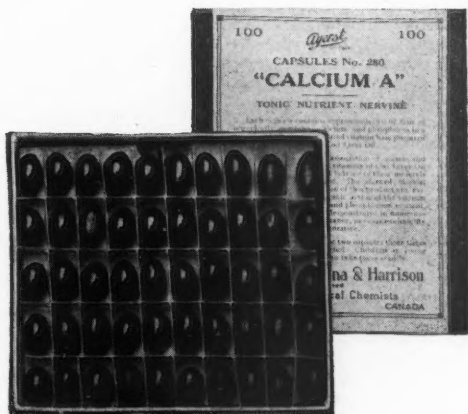
The memoir gives us a very satisfactory conception, from many angles, of the character and work of one who was truly a prophet in the medical Israel. As John Hunter brought anatomy into living relationship with the natural science of his time, so Adami brought pathology into contact with physics, chemistry, and physiology, and established it as a branch of biology. In this he was in advance of his time, but his contention is widely accepted to-day. The influence of his teaching lives on.

One other characteristic of Adami should be noted—his love of beauty and his artistic sense. This affected all he did—his addresses, his writings, his lectures, and his social relationships. It was part of his charm. And, finally, we must admire his devotion to duty and brave resignation in the presence of a painful and inevitably fatal malady. Of this we read in the book. To quote Sir Humphry Rolleston again: "All these aspects of a many-sided and charming personality are presented in detail in this appropriate memorial of a man the like of whom we shall not see again."

A. G. NICHOLLS



# FOR THE 'TIRED OUT' PATIENT



VERY FAVOURABLE CLINICAL RESULTS HAVE BEEN OBTAINED FROM THE USE OF

*Ayerst*

## "CALCIUM A" CAPSULES

in conditions of lowered resistance and nervous exhaustion resulting from some functional disorder or from prolonged and excessive expenditure of energy.

Each capsule represents the TOTAL VITAMIN CONTENT of about one teaspoonful of an average cod liver oil and contains sufficient calcium, in addition, to furnish an important contribution to the daily requirement.

Supplied in dispensing boxes each containing 100 capsules.

A Canadian Product by

**Ayerst, McKenna & Harrison**  
Limited

Pharmaceutical Chemists

MONTREAL - 781 William Street - CANADA

**Text Book on the Nursing and Diseases of Sick Children for Nurses and Welfare Workers.** By various authors. Edited by Alan Moncrieff, M.D., D.Sc., M.R.C.P., (Lond.): Medical Registrar and Pathologist to the Hospital for Sick Children, London, 596 pages, 111 illustrations. Price 15/- net. H. K. Lewis & Co., Ltd., London, England, 1930.

This volume dealing with the disorders and diseases of infancy and childhood from the nursing standpoint has been written to supply nurses with a text-book as complete as possible in this special department of hospital work. Much of the material in the book represents the teaching and technique employed in the Hospital for Sick Children in Great Ormond Street, London, and has been contributed by members of its staff, both surgical and medical, with assistance from the matron and many of the nursing sisters. The chief aim in its preparation has been to present a text-book on the nursing of children, standard in character, and sufficiently detailed to make it suitable as a book of reference.

The first section cover 128 pages, is devoted to general considerations connected with the nursing of sick children and presents the essential characteristics demanded in this department of work. The first chapter opens with a description of a normal infant, and the indications of ill health and disease to be observed by the attending nurse. A short chapter on Bacteriology opens the Section on Surgical Nursing, and is followed by one on the Process of Inflammation and the General Principles of Surgical Technique, in which the following good advice is given. "The nurse must train herself from the commencement of her career to think and act aseptically so that to do so becomes automatic. She must realize that even as a probationer she is a member of the surgical team to which she owes her unfailing allegiance. Slight carelessness on her part may introduce sepsis and stultify the painstaking work of others." Other chapters in this section treat of the necessary arrangements to be made for the child before and after Operation; of Haemorrhage and Shock; of Burns and Scalds; and give careful nursing details.

The Second Section opens with a description of the diseases of infancy, and the principles of dietetics and the artificial feeding of infants, all written with sufficient attention to detail to enable nursing to be carried on successfully with the avoidance of the many difficulties associated with this rapidly developing period of life.

Chapters follow describing the various Disorders of Nutrition and the Systemic Diseases of Childhood, and the special nursing demanded in each. Orthopaedic defects and their surgical treatment occupy a well illustrated chapter filling 50 pages. The care required by the several infectious diseases is efficiently detailed.

The amount of information given in each chapter is fully sufficient to afford a clear picture to the attending nurse to enable her to carry out all nursing details with intelligence and judgment.

At the end of the volume an appendix contains a list of the more important drugs with a brief statement of their therapeutic as well as of their untoward action and their dosage. Several pages are devoted to hospital recipes.

The volume is a small octavo of 580 pages, is well illustrated, and clearly printed. It may be cordially recommended to nurses and social welfare workers who have to deal with sick children.

A. D. BLACKADER

**The Dramatic in Surgery.** Gordon Gordon-Taylor, O.B.E., M.A., F.R.C.S., Surgeon to the Middlesex Hospital. 88 pages, 40 illustrations. Price 12/6 net. Bristol: John Wright & Sons, Ltd.; London: Simpkin Marshal, Ltd., 1930.

It is accepted that in medicine the highly dramatic and sensational events are not always the most important for the relief of pain or the preservation of life and health. The more brilliant or spectacular the opera-

tion, for example, the less likely is it to be as valuable (or as difficult) as the long drawn-out and apparently less effective performance; whilst from the diagnostic point of view the more bizarre and startling the sign, such as the cutaneous eruption in giant urticaria, let us say, the less likely is it to be of ominous portent.

But the unusual always has its own qualities of attractiveness, and the present small volume is an example of how attractive it can be made. Gould and Pyle one knows, and to La Nouvelle Iconographie one can always turn for the monstrous and abnormal. But these are apt to satiate where Mr. Gordon-Taylor has managed to steadily retain our interest.

The operation for a ruptured ectopic gestation is well adduced as a surgical proceeding which is highly dramatic and yet also serves to rescue a patient literally from the jaws of death. But the removal of even gigantic tumours may represent but little more than an addition to the record of the surgeon in the sense of "mass production". "Gynaecological surgeons," it is pointed out, "are at a great advantage when the spoils of surgical warfare are estimated by weight, or calculated in terms of cubic capacity, water displacement, or fluid content." Some of the specimens shown (by very fine coloured plates) will provoke amazement in even the most experienced. For example, a complete innominate bone successfully removed for cystic osteoclastoma; a mass including the stomach, spleen, omentum and splenic flexure of the colon, from a patient who lived at least two years afterwards; a hepatoma of 2 lb. 3 oz., from a boy of 13, and so on.

The war of course contributed heavily to the literature of the marvellous in surgery. Mention is made of Norman Guion of the 2nd Canadian Division and his well-organized "Shock centre," operating in the most advanced medical post in the field; of a famous Canadian officer who, wounded at Arras, was brought by aeroplane to Agnez-Duisant, where he was transfused, had a severe abdominal thoracic wound dealt with, his stomach sutured, and his spleen removed, with recovery in time to lead his battalion into Cologne a few months later. Then there is the famous description of the removal by Pierre Duval of a rifle bullet which entered the left lung, passed through the left ventricle and the inter-ventricular septum, and finally lodged in the intrathoracic portion of the inferior vena cava, from the lumen of which it was safely extracted.

One should not, however, try to republish a book in the course of a review, so that it will be enough to add that Dr. Gordon-Taylor has collected from many sources. He even includes the case of hydrocele in the Scotsman, who, on his way to the hospital for tapping, caused it to rupture by bending to pick up a sixpence on the pavement!

H. E. MACDERMOT

**Recent Advances in Cardiology.** C. F. Terence East, M.A., M.D. (Oxon), and C. W. Curtis Bain, M.C., M.B. (Oxon). 342 pages, 12 plates, 57 text figures. Price: \$3.75. Toronto: Macmillan Co. of Canada, 1929.

This latest addition to the "Recent Advances" series ranks with the best. Graduates of more than a decade will find a great change in the conception of circulatory diseases and recent graduates will find it of great value.

First consideration is properly given to coronary disease and the definite pathological changes recently clarified by the researches of our southern neighbours. Electrocardiograms and diagrams are analysed showing the characteristic broadening of the ventricular complex, with abnormalities in the S.T. period and T wave.

Angina pectoris and other forms of precordial pain are thoroughly dealt with; it is admitted that its causation is not yet understood. First place in etiology is given to deficient blood supply to the myocardium, particularly the left ventricle, as a result of aortic atheroma, and its effect upon the coronary circulation. The pain

# TETANUS ANTITOXIN

*For the Prevention and Treatment of*

## TETANUS

Tetanus is an ever-present menace to all patients who present punctured or lacerated wounds, and modern medical practice calls for the use of a prophylactic dose of 1500 units of Tetanus Antitoxin in all such cases.

The annals of the medical history of the Great War record not only the striking value of Tetanus Antitoxin as a preventive of Tetanus but also its notable value in treatment.

Tetanus Antitoxin as prepared by the Connaught Laboratories is most carefully refined and concentrated and is particularly suitable either for intramuscular or for intravenous or intraspinal therapy.

---

Diphtheria Toxoid

(Anatoxine Ramon)

Diphtheria Toxin for Schick Test

Diphtheria Antitoxin

Scarlet Fever Antitoxin

Scarlet Fever Toxin

Scarlet Fever Toxin for Dick Test

Anti-Meningococcic Serum

Anti-Anthrax Serum

Normal Horse Serum

Anti-Pneumococcic Serum

(Type 1)

Smallpox Vaccine

Typhoid Vaccine

Typhoid-Paratyphoid Vaccine

Pertussis Vaccine

Rabies Vaccine

Insulin & Liver Extract

---

*Price List Upon Request*

## CONNAUGHT LABORATORIES

*University of Toronto*

TORONTO 5



CANADA



may be due to myocardial anoxæmia. Heart tracings are often useful during an attack, but of little use afterward. The authors ask for a definite diagnosis of angina pectoris, "yes" or "no".

Myocardial disease is thoroughly studied, particularly from the therapeutic and prognostic standpoints. Gallop rhythm and pulsus alternans have long been known as of evil omen. The electrocardiogram forms a definite part of the clinical picture in heart disease, and, considered along with the patient, will be most illuminating. Bundle branch lesions are of ill omen, and negative T waves in any lead but III are a valuable signal of trouble ahead. One must distinguish between a shallow negative T in lead III which has no significance and a deeply inverted T III which may indicate a late result of myocardial infarction.

The arrhythmias are carefully treated, with the differentiation of extra-systoles, auricular fibrillation and flutter. Here the graphic method is usually indispensable, though clinical tests will often suffice for the former. The circus movements of flutter and fibrillation are described.

The therapeutics of heart disease by drugs and other means form a useful chapter. Our most valuable drug, digitalis, receives due consideration, together with its various methods of administration, particularly in auricular fibrillation. There is a chapter on x-ray examination of the heart and aorta, and the recent advances along this line. The chapter is not closed, as much remains to be done to clarify the question of the diagnosis of cardiac enlargement in a given case.

The physician will derive a great deal of satisfaction from study of the last chapter on the diagnosis of the healthy heart, and the consideration of palpitation, pain, dyspnoea, fainting, etc. Consideration is given to the elimination of the vague, systolic murmurs in the heart of normal size so often found and so often innocuous. Exercise tolerance tests are planned both for treatment and diagnosis.

C. R. BOURNE

**Diseases of Women.** Harry Sturgeon Crossen, M.D., F.A.C.S., Professor of Clinical Gynecology, Washington University School of Medicine, and Robert Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University of Medicine. Seventh edition. 1009 pages, 936 illustrations. Price \$12.50. St. Louis: C. V. Mosby Co.; Canadian Agents: McAlinsh & Co. Ltd., Toronto, 1930.

The author considers methods of examination with such attention to detail that he leaves no room for failure to follow deductions in the chapter on diagnosis, and then the details of treatment.

There is a suggestion of duplication when the various pathological conditions are again considered at length, but only one other than a teacher will doubt the importance of this feature, and also the great profusion of illustration.

Major operative treatment is not considered in detail, but the general question of operations and post-operative care are fully discussed, also some of the medico-legal aspects.

A chapter by Brooks on associated conditions in the lower bowel, and one by Ehrenfest on the glands of internal secretions, the latter, particularly interesting and timely, round out a book, which as an elementary treatise for students, or reference book for practitioners, stands practically alone.

H. B. LITTLE

**Clinical Obstetrics.** Paul T. Harper, Ph.B., M.D., Sc.D., F.A.C.S., Clinical Professor of Obstetrics, Albany Medical College. 629 pages, 84 illustrations. Price \$8.00. F. A. Davis Company, Philadelphia, 1930.

The natural phenomena of parturition, together with the abnormalities of pregnancy and labour, are presented by Harper in his recent work. The book is not written

as a text-book for the beginner, but is intended as a work of reference for those who have already acquired a foundation in the fundamental principles of obstetrics.

Many of the more difficult and probably less understood conditions in obstetrics, such as asynclitism and Bandl's ring, dystocia, are discussed at considerable length and in a very clear manner. In the chapter on toxæmias of pregnancy the various methods of treatment, the Stroganoff method, the rotunda treatment, the modified Stroganoff method of Hopkins, are reported in detail, but the author believes that empiricism in the management of so grave a condition is unwise, and that each case must be considered individually. In conditions requiring operative interference, the technique is clearly described and also illustrated leaving little for the imagination.

The text is illustrated throughout by small drawings by the author himself, which with their appended descriptions greatly clarify the subject matter. As a reference book in obstetrics it is quite unique, not only in the novel illustrations but also in the manner in which the subject matter is handled. Only practical obstetrics is discussed, the anatomy of the pelvis and physiology of pregnancy being omitted.

ELEANOR PERCIVAL

**Treatment of Children's Diseases.** Prof. Dr. F. Lust.

Translation of the sixth German Edition with additions by Sandor A. Levinsohn, M.D. 513 pages. Price \$8.00. Publishers: J. B. Lippincott Co., Philadelphia, London, 201 Unity Bldg., Montreal, 1930.

The first edition of Dr. Lust's book on therapeutics in childhood appeared in 1918, and now having gone through six editions it is translated into English with revisions and additions to bring it into conformity with American opinion. The emphasis throughout has been placed on the management of the sick child by hygiene and diet, and although at times the array of recommended drugs necessarily appears formidable the author warns against the use of medicaments in infancy and early childhood. Where the German procedure is at variance with American opinion and practice the translator's notes indicate the accepted methods on this continent.

An outline of the development and nutrition of the healthy infant is given in the first two chapters, together with a concise presentation of the principles of breast and artificial feeding. The remaining twenty-two chapters are concerned with the treatment of the various diseases of infancy and childhood, each section being introduced with a short sketch of the salient diagnostic features of the disease under discussion. There is a good chapter on the technique of therapeutic measures and a valuable pharmacopoeia of 120 pages which includes directions for the preparation of infant foods.

It is unfortunate that the prophylaxis against the deficiency diseases by the routine feeding of vitamins receives no mention in this volume. The subject-matter is well arranged and well indexed; the paper is of poor quality. The book should prove of real value to practitioners as an up-to-date, concise yet comprehensive exposition of rational therapy in pædiatrics. A. K. GEDDES

**Affections of the Eye in General Practice.** R. Lindsay Rea, B.Sc., M.D., M.Ch., F.R.C.S., XVI and 155 pages. Seven coloured plates and 33 other illustrations; Demy 8vo. Price 10/6 net. London, H. K. Lewis & Co. Ltd., 1930.

The author has set himself a difficult task. He has tried to meet all the recurring eye problems of the isolated general practitioner, and to do it in a small book of 155 pages.

The matter of the book falls, roughly, into two classes, viz., eye conditions which are local, and those

# IMPORTANT FACTS ABOUT RADIOSTOL

*The original British irradiated ergosterol*

Radiostol was first made available to members of the medical profession in March, 1927, in the form of a physiologically standardized solution in oil, and it has been used in hospitals and general practice as the routine treatment for Vitamin D deficiency throughout the past three years.

Radiostol is made under scientifically-controlled conditions, and is standardised physiologically to possess, weight for weight, 100,000 times the antirachitic activity of a high-grade cod liver oil. Radiostol is a product of proven value; its clinical effects are known and uniform, and no deleterious consequences follow its administration even in large excessive doses.

Radiostol is issued in solution and in pellets of guaranteed potency, the solution possessing a Vitamin D activity of 10,000 antirachitic units per c.c. and the pellets an activity of 6,000 units per pellet.

*Full particulars are available from any of the following stockholders:*

Drugs Limited,  
Lydia and McDermott Sts.,  
Winnipeg

The Drug Trading Co.,  
4-10 Ontario Street,  
Toronto

B. C. Drugs Limited  
Vancouver

THE BRITISH DRUG HOUSES LIMITED, LONDON, ENGLAND



## ARHÉOL



**The Active Principle  
of Sandalwood Oil**  
Gonorrhoea. Cystitis. Pyelitis.  
Pyelonephritis. Vesical Catarrh

## KOLA ASTIER

*Granulated*



**Anti-Neurasthenic  
Regulates the Heart**  
Energetic Stimulant of Muscular System

LABORATOIRES: P. ASTIER, 45-47 Rue du Docteur Blanche, PARIS  
332 BROADWAY, NEW YORK

Sole Agents for Canada: ROUGIER FRERES, 210 Lemoine Street, MONTREAL

which are a part of more general diseases. To know the former even, is practically to be a specialist. Trachoma, conjunctivitis, episcleritis, primary iritis, corneal ulcers, glaucoma, cataracts, squints, etc., are conditions for the ophthalmologist to deal with, and if the general practitioner is forced by isolation to treat these cases, he needs, at least, to consult a more comprehensive work than this little book. General practitioners in India, China and other far countries where eye diseases are rampant need also a more complete guide. Exceptions to this statements are the sections on ophthalmia neonatorum, and the hygiene of the eyes. These are excellent for their purpose.

As regards eye conditions as symptoms, the general practitioner and many an ophthalmologist would derive much aid from Lindsay Rea's presentation here. The section on diseases of the choroid and retina, secondary iritis, the examination of the eye in diseases of the nervous system, localizing eye symptoms in the diagnosis of diseases of the brain, symptoms of errors of refraction bring out most of the essential points clearly.

The book is replete with cautions against common errors, such as examining an eye without proper light, the reckless use of silver nitrate, bandaging the eyes with conjunctivitis, the rash diagnosis of fundus anomalies, etc. The author, in fact, is well aware of the necessity of "don't's" in his advice to those whose daily duty is not the care of the eyes.

The book is interesting and eminently readable. It is printed clearly on excellent paper and the matter is well arranged. The profuse illustrations add much towards simplifying the text, although the coloured plates leave something to be desired.

The general practitioner would do well to add this small volume to his library, and he would do better to add a more complete work on ophthalmology also.

G. STUART RAMSAY

**Getting Well and Staying Well.** John Potts, M.D. 2nd edition. 221 pages. Price \$2.00. St. Louis: C. V. Mosby Co. Canadian Agents: McAlinsh & Co. Ltd., Toronto, 1930.

The book has been prepared by the author with the intention of providing a clear and reliable statement of those facts about which, as his experience in tuberculosis work has revealed, the public in general and the tuberculous patient and his family in particular, should be thoroughly informed. He has succeeded admirably in his purpose. The book will also serve for the enlightenment of the public health nurse, and can be read with profit by any physician.

The first chapter of the book is perhaps the best. The author's description of how it feels to be tuberculous is particularly excellent. The reader may feel that the author is somewhat severe on the general practitioner, but doubtless his experience with missed diagnoses accounts for his attitude.

A. GRANT FLEMING

**Ultraviolet Light and Vitamin D in Nutrition.** Katharine Blunt and Ruth Cowan. 229 pages, illustrations and charts. Price \$2.75. The Macmillan Co., Toronto.

A well written, easily readable book in which the subject is thoroughly covered. The material is up to date and the scientific work reported in the book is above question. Especially interesting chapters are included on teeth and antirachitic vitamin, man's use of the ultraviolet light, irradiated foods and ergosterol, and pregnancy and lactation. This book can be recommended to physicians, students, nurses, and dietitians who are interested in any of the phases of ultraviolet light and vitamin D in nutrition, and who wish to obtain the latest ideas on the subject up to the date of publication, January, 1930.

T. G. H. DRAKE

**Insomnia.** Joseph Collins, M.D. 131 pages. Price \$1.50. D. Appleton & Co., New York, 1930.

This little volume is the latest in the Appleton "Popular Health Series," written for the general reader on the subject of the common ailments. In it Dr. Collins discusses the nature of sleep, its disturbances and their causes and treatment. "Insomnia is to be cured by enlightenment, determination and discipline, not by drugs, coddling and self-indulgence." The book is easily read and may be safely recommended for the encouragement of insomniacs.

A. K. GEDDES

**Statistical Methods for Research Workers.** R. A. Fisher, Sc.D., F.R.S., Formerly Fellow of Gonville and Caius College, Cambridge; Chief Statistician. Third edition, revised and enlarged. 283 pages. Price 15/- net. Oliver and Boyd, Edinburgh and London, 1930.

High school girls and boys know that the ratio of the circumference of a circle to its diameter is equal to 3.14159 and that the latter value is commonly known by the Greek letter  $\pi$ . Proof of the above mentioned ratio is, however, another matter and concerns higher and difficult mathematics; and it is probably a conservative estimate that not more than one person in 10,000 of those who have had a high school education knows the proof. This does not, however, interfere with the wide application of  $\pi$  to daily problems. In their daily routine, engineers assume that the circumference of a circle is equal to  $2\pi r$ . The majority probably do not know its mathematical proof, but this does not prevent two engineers working independently from obtaining the same practical results.

The above mentioned conditions should equally apply to the application of statistical methods in biological studies, including medicine. Unfortunately, it is the rule, rather than the exception, that when the average student of biology makes an attempt to apply statistical methods to numerical data, the general impression left is that such methods are forbidding, as he finds them hermetically sealed under unknown terms and equations.

Statistical methods will only be made use of by the great majority of those who need them in direct proportion to the simplicity with which this science is taught. Dr. Fisher appreciates this fact. In 1925 the writer had the occasion to review the first edition of this book in this *Journal* (15: 984, 1925). The book was recommended because it could be made use of by those with limited mathematical training. The author has selected the salient principles and has systematically constructed in small space a work which makes it simple for the reader to get a clear conception of the application of statistical tests to experimental data. The book is further enhanced by the fact that the author's experience with statistical methods is not purely theoretical, as he has been in intimate contact with problems of the laboratory for some time.

Though each method made use of to-day has its underlying theory, the arguments with regard to the development of these theories are entirely out of place in a practical work and will, therefore, not be found in this book; for the student who is mathematically inclined, and who has the advantage of leisure, proof of all the methods here recorded may be found in other readily available works.

The fact that this book belongs to the series of "Biological Monographs and Manuals" is a recommendation in itself; that it has reached its third edition in so short a period of time is further proof of its value. The final chapter on statistical estimation, not found in the first publication, is a welcome addition.

I. M. RABINOWITCH